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ABSTRACT

This report describes the first phase of an institute that was designed to provide technical information to the chief administrative officials of state archival agencies about new trends in information technology and to introduce them to management tools needed for operating in this environment. Background information on the first institute (1989-90) and a brief review of the main points of presentations made by the institute participants are included in the introductory materials. More detailed summaries of the following presentations and discussions are also presented: (1) a review of past and present goals and objectives of the institute (Edwin C. Bridges, Alabama State Archivist and Chairman of the National Association of Government Archives and Records Administration--NAGARA); (2) "Electronic Records and Their Implications for Archives" (Charles Dollar, National Archives and Records Administration); (3) "State Government Information Policy" (Michael Hale, Executive Administrator of the Florida Information Resources Commission); (4) "Strategic Planning: Introduction and Model," "Strategic Planning: Stakeholder Analysis," and "Strategic Planning: Pointers for State Planning" (John Prescott, Katz Business School, University of Pittsburgh); (4) "Information Technology Forecasting" and "Systems Design and Analysis" (Ken Sochats, Department of Information Science, School of Library and Information Science, University of Pittsburgh); (5) "Elements and Requirements for a State Electronic Records Program" (Margaret Hedstrom, New York State Archives and Records Administration); (6) "Information Technology Standards and Standardization" (Michael Spring, Department of Information Science, School of Library and Information Science, University of Pittsburgh); and (7) discussions of a proposed Council of State Government Study on State Records Laws and Electronic Records (Edwin C. Bridges), the National Archives Optical Disk Report (Edwin C. Bridges), and Graduate Archival Education and State Archives Employment Needs (Richard J. Cox). Appendices include a list of names, addresses, and telephone numbers of the NAGARA Institute participants and National Archives representatives; the schedule for the institute; an annotated bibliography of readings and reserve readings for the institute; reports of the institute working groups; and an outline of research issues and proposals. (MAB)

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ARCHIVAL ADMINISTRATION IN THE ELECTRONIC INFORMATION AGE: AN ADVANCED INSTITUTE FOR GOVERNMENT ARCHIVISTS

Organized and Conducted
by the
School of Library and Information Science
University of Pittsburgh

Co-sponsored
by the National Association of Government
Archives and Records Administrators

Funded by the
National Historical Publications and Records Commission

June 2-14, 1991

December 1991

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Archival Administration in the Electronic Information Age:
An Advanced Institute for Government Archivists
June 2-14, 1991
School of Library and Information Science
University of Pittsburgh

Introductory Note. This report is intended to capture the essence of the presentations, discussions, and participant projects that occurred during the first phase of the second Advanced Institute for Government Archivists, made possible by a grant from the National Historical Publications and Records Commission. It is hoped that this report will serve as a record of the Institute and be useful to others interested in the issue of the preservation and management of electronic records possessing continuing value. This report was prepared by Richard J. Cox, Lecturer, Department of Library Science, School of Library and Information Science, University of Pittsburgh, who is solely responsible for its contents.

Background: The First Institute (1989-90). During the summer months of June 1989 and June 1990 state government archivists and records administrators, along with representatives of the National Archives and Records Administration, met together to receive intensive instruction on the characteristics of and projected future changes in modern information systems and to be introduced to management tools needed for operating in this new environment. This initial Institute was funded by the Council on Library Resources (CLR) and jointly sponsored by the National Association for Government Archives and Records Administrators (NAGARA) and the University of Pittsburgh's School of Library and Information Science (SLIS).

The first Institute has proved effective in assisting state government archivists to develop new ways to manage electronic information systems which represent one of the main means by which governments will create records with archival values.[1] At the two phases of the first Institute, individuals from sixteen state archives and the National Archives were provided two presentation tracks, one on trends in modern information technology and the other on strategic planning. The Institute led to a number of immediate as well as potential long-term outcomes. The most important outcome, and the one with the most potential long-term benefit, was the increase in knowledge by the state archival administrators about electronic records; as a result, a number of the state archival programs are beginning to develop long-range strategic plans for managing archival records in electronic form. There were also a number of short-term outcomes from the Institute. Partly as a result of the increased interest by the state archivists and records administrators in electronic records and the policies that govern their creation and use, the Council of State Governments (of which NAGARA is a member) established a standing information policy committee. Also during the second phase of the Institute, the participating archivists had an unexpected opportunity to discuss and recommend revisions to the Paperwork Reduction Act on the management of electronic records with archival value and to communicate their concerns to the appropriate individuals and agencies. A statement on electronic records and state governments, with a guiding set of principles for work with electronic information technology, was drafted and eventually published by NAGARA.[2]

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[1] The long-term impact of the Institute can only be ascertained, of course, as government archives establish programs and develop solutions for the management of electronic records possessing archival value. However, this Institute represents a distinct departure from previous efforts by government archivists and records administrators to grapple with the challenge of electronic records and the changing nature of information technology.

The Second Institute: Purpose and Design. With such outcomes (both immediate and long-term), it was deemed important to continue to provide assistance to the state government archives and records management programs by offering a new two year Institute, the second year of which will include a reconvening of the participants from the 1989/1990 Institute in order to report on progress made in the management of archival records in electronic form, to consider continuing needs, and to develop new strategies and approaches needed to be taken by government archives.[3]

The new Institute being described in this report was funded by the National Historical Publications and Records Commission. The Institute was funded with three purposes in mind:

1) to provide technical information about new trends in information technology;

2) to provide an introduction to the value of strategic planning for

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[2] The brochure is available from NAGARA through The Council of State Governments, Iron Works Pike, P.O. Box 11910, Lexington, KY 40578 or directly from the NAGARA Executive Secretariat, New York State Archives and Records Administration, 10A75 Cultural Education Center, Albany, NY 12230.

[3] Full accounts of the first Institute are available in reports prepared by Richard J. Cox and distributed by the University of Pittsburgh School of Library and Information Science and the National Association of Government Archives and Records Administrators.

working in the state information policy and technology environment; and

3) to provide an opportunity for these administrators to share insights, solutions, and experiences gained from working in this environment.

Attendees at this first phase of the 1991/1992 Institute included representatives of ten new state government archives and records management programs along with other staff from six other state archives represented in the first Institute. Two different representatives from the National Archives and Records Administration were also involved in this Institute than in the first Institute. Appendix One includes a full list of the 1991 Institute participants.

To meet the goals and objectives set forth above, a two week program emphasizing a number of activities and presentations was developed. These major activities and presentations have been reported on in detail below, but the program merits a brief summary at the outset of this report. Highlights of the first phase of the 1991/1992 Institute included the following presentations: Charles Dollar of the National Archives and Records Administration on electronic records and their implications for archives; a review of state government information policy trends, issues, and concerns by Michael Hale, Executive Administrator of the Florida Information Resources Commission; three presentations by John Prescott of the University of Pittsburgh's Katz Business School on strategic planning; a review of information technology forecasting and an additional presentation on systems design and analysis by Ken Sochats of the Department of Information Science, School of Library and Information Science, University of Pittsburgh; elements and requirements for a state electronic records program by Margaret Hedstrom of the New York State Archives and Records Administration; and information technology standards and standardization by Michael Spring of the University of Pittsburgh's Department of Information Science, School of Library and Information Science. In addition to these formal presentations, there were evening elective discussions on the Council of State Government study on state records laws and electronic records and the National Archives optical imaging study, and graduate archival education and state archives employment needs led by Edwin C. Bridges, Institute facilitator.

The Institute also had two working groups examining a variety of related issues to information technology, information policy, and state government archives. A full copy of the schedule is in Appendix Two of this report. The remainder of this report is a daily account of activities at the Institute.

Monday June 3: Welcomes and Orientation. The Institute started with greetings from Dean Toni Carbo Bearman. Richard J. Cox, a faculty member of the University's School of Library and Information Science and a member of the Institute's planning committee, followed this with information about the school, the university, and the Oakland area and Pittsburgh in general. Edwin C. Bridges, a member of the Institute's planning committee and the Institute's facilitator, then made a few preliminary comments about the structure of the Institute, attendance, the agenda, and related matters. Bridges stressed that the agenda was intended to meet the participants' needs and that the participants should take advantage of this to make their needs known. He urged them to remember that this was a group of peers who should keep in mind that certain needs and opportunities might become available that may be to their advantage and merit consideration of a change in the schedule.

Ed Bridges then presented a brief history of the Institute. He started with a description of the 1980 meeting of the Coordinators of the State Historical Records Advisory Boards, hosted and organized by the National Association of State Archives and Records Administrators, convened to reconsider the roles of these boards. This meeting stressed the need for cooperation in an increasingly "post-custodial" age, as characterized and emphasized by F. Gerald Ham. There was also a stress on management and planning at this meeting, accentuated by the Carter federal budget that made an effort to eliminate the funding of the National Historical Publications and Records Commission. NHPRC used its then remaining funds to allow the state boards to conduct statewide assessment reports. These reports were followed up by a meeting of the state historical records advisory boards coordinators in June 1983 in Atlanta to evaluate the assessment reports and to plan and build for the future. Bridges characterized this meeting as the one that best characterized a generational change in leadership in state government records programs. This meeting also led to a change in the way that NASARA operated and to a name change to the current National Association of Government Archives and Records Administrators (NAGARA).

There was considerable discussion, according to Bridges, following the 1983 meeting, attesting to the need for a reconceptualization of government archives programs and the archival profession and mission in general. One of these efforts was the Council on Library Resources-funded analysis of the condition of federal government records programs, this analysis leading to a new focus on the problems of electronic records, the needs for new cooperative efforts, and other similar efforts to revitalize the operations of archival programs.[4] One of the problems with the need to focus on electronic information technology, according to Bridges, was the fact that so few states were doing anything in this area. This prompted a number of people in NAGARA to conceive of the idea for an educational institute to enable state government archivists and other records administrators to learn more about the information technology and policy arenas, as well as to learn how to conduct planning for state government archives in the increasingly complex world of information technology and planning.

Bridges then discussed what occurred during the first 1989/90 Institute. He mentioned some of the benefits that the first Institute participants received and have contributed to the archival profession. Strategic planning goals were the least effective part, with only a few states using what was the learned about this in a practical matter; these few states, however, have made substantial progress in their work in this area. Other participants found much that was useful in a review of changes and developments in information technology and a review of the studies and reports on information technology and policy. Bridges reviewed what was learned in the first Institute, referring individuals to the reports that generated from the Institute. He mentioned some of the other benefits that occurred. David Hoober, a member of the NHPRC, reported to the Commission on what was occurring at the Institute and this was influential in a report by the Commission on electronic records.[5] A similar committee was set-up in NAGARA to look at preparing an electronic records agenda and a report is now in draft. The Council on State Governments has also been influenced to consider electronic information technology from a variety of perspectives including that of the state government archivists. In the 1990 phase of the Institute there was also considerable discussion about revisions to the Paperwork Reduction Act that emanated from a panel discussion on this important legislation; because the bill was being reconsidered at the time the Institute was meeting, there was an effort to draw up a set of formal recommendations for changes to the legislation. Bridges then reviewed a number of other liaisons and efforts that have been affected or started because of the work done at the Institute. The result of the learning was the realization that state archives and records programs cannot operate independently or apart from state information policy and the larger state government information environment. The exercises of drawing up statements and setting priorities was also a useful effort in the first Institute.

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[4] Committee on the Records of Government: Report (Washington, D.C.: The Committee, March 1985).

[5] Electronic Records Issues: A Report to the Commission, Commission Reports and Papers, no. 4 (Washington, D.C.: National Historical Publications and Records Commissions, March 1990).

Richard Cox then reviewed the schedule for the next two weeks and the various readings related to the Institute sessions (see Appendix Three for an annotated list of some of the readings used in the Institute).

Ed Bridges then reviewed the purposes of the two Institute small working groups, one focusing on national issues and concerns and the other on state government level issues and concerns. As is described below in this report, these two small groups evolved in concept to consider other issues and concerns.

State Status Reports. The first day's afternoon session was started with each participant discussing the status of their state programs dealing with electronic records and information policy. In this afternoon session, each Institute participant presented some brief comments about the nature of his or her program, how their organizations were interacting with other state government agencies in their use of information technology and broader information policy, and how effectively they were dealing with archival records in electronic form.

Several important conclusions and issues emerged from these presentations. First, many state archives have difficulties in finding adequately trained and experienced archivists capable of working with electronic records. Second, many state government archivists need to overcome administrative obstacles in reaching the state agencies involved in decision-making about the use of electronic information technology and the setting of information policy. Third, there is considerable concern about how best to manage effectively electronic records, especially whether these records are best handled by integrating the administration of these records into standard records and archival administration procedures or by establishing specific centers for the management of electronic records.

The following is a brief summary (these brief descriptions are intended only to capture the main points of each speaker) of the presentations made by the Institute participants:

Indiana, reported on by F. Gerald Handfield, Jr., has a task force that has looked at optical imaging systems, leading to a set of imaging standards. The state archives has also set up GRAIL (Government Records and Automation Integration Lab) to look at and monitor the ways in which traditional records and automated information systems relate to each other. Indiana is also making an effort to provide internal training for its staff and state government employees on electronic records issues. The state has also recently had proposed and passed revisions to the state records laws that will allow records to be considered in such a way as to incorporate electronic forms and to update antiquated laws that, as one example, would not allow the destruction of records that have been microfilmed.

The Texas state archives is part of the state library. It has an integrated records management-archives operation. Christopher LaPlante noted that there has been more progress made in local government records than in other areas in recent years. Several years ago a model law was passed, providing for the development of both micrographics and local government standards. Micrographics standards have been developed and issued, but there has been no major progress made in the development of electronic records standards. Texas has a Department of Information Resources with broad responsibilities for the use of electronic information technology and other issues like access and costs.

Virginia, as reported by Dennis Hallerman, has done work on imaging systems, especially the use of optical disk imaging systems for conversion of microfilmed documents. Virginia has microfilm standards in place for state agencies. Optical disks guidelines have been developed and will be adopted in the near future. Virginia has in place retention and disposition schedules for state government records, including those for electronic records. The state also has a local government re-grant program based on recordation fees. Virginia is also working on the development of Geographic Imaging Systems standards for state and local government agencies. As part of a plan for a new state archives building, there is work being done on a statewide network for archives and, as well, automating the state and local government records schedules.

Tom Mills reported on the New York State Archives and Records Administration. Mills briefly described the scope of state and local government records programs, but he focused on the state government records programs. In 1985 New York initiated a Special Media Project to look at electronic and audio-visual records. This led to a published plan in 1988. In 1987 the state government records management program was transferred to the responsibility of the state archives. In 1990 a Center for Electronic Records was established in order to provide a focus for dealing with the issues caused by the increasing uses of electronic records. This Center is looking at a number of issues, including an inventory of electronic systems, integrating these systems into the state government schedule, access to automated systems, and related issues. Mills stressed that much of what was going on in New York was a re-evaluation of basic records management and archives programs. The New York program is publishing a series of booklets on the state government records programs, including two on electronic records. He noted the challenges of getting a program off the ground, stressing the need for having good people on staff to deal with these issues and for reassessing how traditional paper systems actually relate to automated systems.

Wyoming, as reported by Tony Adams, is part of the Department of Commerce, a government section dealing with cultural resources. Adams described the work on standards that the state archives was participating in. He noted that a few electronic records have been scheduled, but that the emphasis has continued to be on paper and micrographic systems.

Lotte Bailey reported on North Dakota. The state archives is part of the State Historical Society. The state archives has a staff of ten and has no view that electronic records are in fact official records at all. The state archives has made little progress in this area, with other state agencies having responsibility for electronic records. The state records management program is most concerned with electronic records, but it is mostly focused on traditional paper systems.

Rhode Island was described by Tim Slavin. He commented on how much of the records management programs have been privatized. He also noted that some controversy had erupted about access to public records because of some pension deals that state officials had been involved. Slavin described that there was ample opportunity for the development of information policy and an electronic records program although no major agencies or leaders had emerged that could be targeted for working on this.

Lawrence E. Hibpshman reported on Alaska. He described recent efforts to develop new regulations for archives and records management programs. These regulations are efforts to incorporate electronic records. Electronic records have been determined to be official records with the need for scheduling and general management.

Ted Weir described the National Archives Archival Research and Evaluation Staff. He mentioned the reports that had been recently published on optical image storage systems and expert systems and commented on projects currently underway, including a survey on optical scanning practices in state and local government; a draft of this final report was made available to participants later in this Institute. Another report on scholarly research practices using electronic systems is being prepared, as is a user study in the National Archives. The unit is also looking at the preservation of electronic records. Ted Weir is responsible for monitoring standards, especially those that fall within Z39 and X3. He mentioned Office Document Architecture's recent adoption by a number of American computer manufacturers and vendors.

Patricia Morris reported on progress being made in South Carolina, one of the states involved in the 1989/90 Institute. Morris is responsible for arrangement, description, and preservation; she attended the Institute to become more knowledgeable about electronic records, records that she is increasingly having to deal with in her work. Most of the agency's work has been with a backlog of paper records. There is, she noted, more concern about electronic records in the records management division at the present. South Carolina is also involved in a major strategic planning process for all of its programs.

Fynnette Eaton reported on the work of the National Archives' Center for Electronic Records. Electronic records are one of the three priorities for the National Archives. The Center is developing an internal system for copying tapes, looking at meta-data systems approaches for determining what databases the federal government is now using (this is a National Academy of Public Administration [NAPA] project), and reviewing how older records schedules are actually leading to the accessioning of electronic records by the National Archives. Eaton talked about some of the problems of the magnitude of dealing with the accessioning of electronic records tapes.

Jeff Johnson reported on the Utah state archives. The state archives is part of the Department of Administrative Services. A new state records law has been enacted, called the Government Records Access and Management Act. Johnson described the challenges in implementing some of the provisions of the new law. Johnson noted that they have approached electronic records as records that need to be managed like any other records. Johnson commented on some of the problems caused by working with continually changing state agencies and their activities, such as the transition from data processing to information resources management. There is an information review committee that evaluates new information systems to be used in the state government; he noted that there is a problem with this committee really maintaining any level of control over the individual agencies.

Peter Gottlieb reported on the Wisconsin state archives. He noted that the state archives has been buried in the State Historical Society and a very strong manuscripts tradition. The state archives has stored electronic records. He noted that government in the state is very decentralized, making it difficult to deal with such issues as electronic records and information policy. Wisconsin had a pioneer state electronic records program from 1979 to 1983, but that program has not been kept up; there is a need to start over, according to Gottlieb. The state archives is represented on a state information policy group in the state government; one project that this group is looking at is the compilation of a registry of data bases.

The Montana state archives was described by Kathryn Otto. The state archives has three professional staff and one technician and this staff is also responsible for the manuscripts collections; the manuscript collections usually take priority over the state government archives and records management. The state archives and the state archivist have no connection to the state information policy committees and groups. Electronic records have only been scheduled when state agencies have requested scheduling out of an interest for old systems.

Charles Robb reported on the work in Kentucky. Kentucky has been considered by outsiders as a model, but, as Robb noted, it is fraught with problems and failures as well. The work started in 1985 with a National Historical Publications and Records Commission (NHPRC) grant, building on the work set by others such as Margaret Hedstrom at Wisconsin and now New York. Kentucky worked on a project to develop a data dictionary; the state archives is committed to a meta-data system approach. There was thought about the notion of integrating the electronic records programs responsibilities throughout the staff and state archives, but there was a realization that this approach was not working. This led to the decision to create the Technology Analysis and Support Branch. At this point the Kentucky state archives has an excellent relationship with state information policy and technology groups throughout the government.

David Larson described the work of the Ohio state archives and the Ohio Historical Society, its parent agency. There was tremendous growth in the historical records programs from the late 1960s through the late 1970s. There has been less development in the state records management area. Larson is the first state records administrator, a position established in 1985; Larson has been in this position since its creation. Over the past five years or so, this state records administration program is trying to make up for lost ground, attempting to put Ohio state government where many other states were twenty years ago. This program runs an internal education program in records management for state personnel. It is now working on an online records scheduling system, and it has also tried over the past four years to get funding for an electronic records management program without success. A strategic plan, with an emphasis on the political basis, is needed.

Terry Baxter reported on activities at the Oregon State Archives, a division of the Office of the Secretary of State. The Oregon Archives created a position for an electronic records archivist in 1988, a position for which he was hired. After spending roughly a year and a half in examining the issue, the program began active operation in the Fall of 1990. They have established an Electronic Records Advisory Committee with a broad range of outside representatives. They are also setting up a Digital Image Advisory Committee. This committee is issuing rules and advisories on specific issues that will be compiled in a binder format and added to or updated as needed. Oregon also has a new comprehensive state archives bill which deals with electronic records issues, including the authority to issue standards, and appears to be on route for legislative approval.

The first day's activities were concluded with a brief orientation to the SLIS Library and its resources.

Tuesday June 4 Electronic Records and Their Implications for Archives. Charles Dollar, National Archives and Records Administration, made a presentation on "Electronic Records and Their Implications for Archives." He started his presentation by commenting on how his ideas have been evolving over the past year or so; Dollar noted that he is now at work on a report that will be published by the University of Macerata (Italy) in early 1992. The origins of his ideas and this paper went back to a conference held in May 1989 at the University of Michigan that led to another meeting held at the University of Macerata in May 1991. The purpose of this paper was to look at both European and North American archival principles and practices in light of the rapidly developing modern information technologies. He noted that there are many differences of opinion about the nature of information technologies, as well as some differences of opinions about the basic archival principles and practices. Dollar stated that many of his fundamental ideas go back more than a decade, acknowledging the many individual and institutional debts.

Dollar started with a review of information technology trends, looking at information capture, processing, storage, retrieval, sharing and integrated functionality. He stressed some changes in his ideas, noting for example that multi-media computing (combining text, image, and sound) is one of those areas that may bring great potential change in the way that we will view information and the manner in which organizations use information. Dollar briefly described the nature of change in each of the information technology areas. For example, in the matter of information capture he compared and described key-entry, voice/speech, optical and image character recognition, and digital imaging. He mentioned, as another example, the relative differences in time in moving a two megabyte file in a 286, 386, and 486 computer (differences of 13 minutes to 2 minutes to 20 seconds) as a way of stressing the increasing power and capability of modern computers; these changes have occurred in the short time of a few years. Under information processing, Dollar discussed parallel and multi-media computing, expert systems, geographic information systems, and object-oriented computing. In information storage he compared magnetic media to optical media. Dollar mentioned that the retrieval of text and image is greatly accelerating, although images require special indexing in order to allow efficient retrieval to occur. Finally, in this general review he mentioned the increasing inter-operability of information technology hardware. He holds the view that information technologies both constrain and expand the opportunity or ability of human communication.

Dollar saw three ways that technology is changing the present world, especially that portion in which the archivist operates. First, he believed that the nature of documentation is changing. Dollar believed that paper continues to persist and will continue to persist, in fact, in increasing quantities. The reason for this is the inexpensive and portable nature of paper, as well as its attractiveness to many individuals as a tangible object. Electronic documents change some of the characteristics that are inherent in paper documents. The relationship between physical and logical features of documents is changed in certain electronic forms such as compound, smart, multi-media, and database and virtual documents. This causes some fundamental changes in the notion of the record. Information technology also is enabling the decentralization of information, according to Dollar, especially through such systems as that of electronic mail.

Dollar then reviewed the other two ways in which technology is transforming the world and its organizations. Second, Dollar stressed the importance of the changing nature of work. There is a sense of "instantanity" and there is a great alteration in the manner in which information flows through an organization. Electronic mail, as one example, bypasses the standard, traditional notions of hierarchical institutional arrangements. Third, and finally, technology changes are a condition of modern life, especially that of a rapid rate of change.

Dollar then considered archival principles in the modern information technology environment. He started his comments with his perception of the need to reconsider the definition of a record. Previous notions of a record have focused on the physical entities and the form and content of a document. These characteristics are not necessarily present in an electronic document because the physical and logical notions of a document are separated. He suggested that archivists need to move back to their basic archival notions, the evidence of a transaction and, following this line of argument, any communication qualifies as a record. What are the implications of this view? Databases are constantly changing and, in this sense, a database is an information resource and the record transaction is the specific use or application of a record. A key question in all of this is when does the archivist intervene in the creation and use of electronic files? Dollar suggested that the archivist should intervene when there is communication. Previous practice has been that the archivist is involved with the record only when it has been entered into a file. These comments prompted a discussion about the concept of a record, perhaps leading to a definition of a record based not on transactions but on issues of accountability. There is a need for a better definition of a record, most Institute participants agreed.

Dollar discussed the most fundamental archival principle - provenance. He defined provenance as the organizational context of the creation and use of records. Paper-based records' provenance has been delineated through examination of policy, procedures, and manuals; organizational charts; physical arrangement; and the physical characteristics of paper. In electronic records there is a change in this basic notion of provenance. Archivists must still understand the organizational context, but they must also understand the separation of physical and logical relations. Archivists need to concentrate on meta-data that provides information about information systems. Dollar, in reaction to a question, explained the concept of a meta-data system; this concept was compared to the fields of a US MARC AMC format record (information about information). There was some discussion about research being done on Information Resource and Data Dictionaries (IRDS) and the present state of international standards relative to IRDS. One of the problems, according to Dollar, is the current lack of standards; another challenge is the fact that there are multiple notions of the IRDS and what it encompasses. Charles Robb and Tom Mills described the efforts underway in New York and Kentucky to use the IRDS as a mechanism to manage electronic records in state government.

Dollar then shifted from archival principles to archival methodology. The first area that must be changed, he noted, is the notion of a central archival repository. The primary approach has been to centralize archival records in order to protect the legal and physical custody of inactive records, assuming that this provides a cost-effective approach, and that it makes it easier for the researcher to use archival records. Dollar argued that a cost-benefit argument for centralization is not a good one because of excessive migration costs and because access to electronic records will cost about the same whether in a central repository or not. What must be done is to redefine the role and responsibilities of the archives, focusing on activities that best facilitate access; at best, he argued, archival repositories should be repositories of last resort for the storage of electronic records. This led to a discussion by Institute participants of a move by archival programs away from a custodial role to that of a regulatory agency.

The next archival methodology Dollar considered was appraisal. The appraisal criteria for paper records has been that of evidential and informational values. But the appraisal methodology for electronic records had to take into account different issues: master files, manipulability, the linkage of records, technology obsolescence, and documentation of the systems. Emerging from this was a concern that the appraisal process had to be moved way up the life cycle of records. Dollar questioned whether standard archival appraisal really stands up with electronic records. He argued that archivists had to be involved in information system design to safeguard archival records, that archivists had to define archival functional requirements, that archivists must focus upon the IRDS (or metadata), and, finally, that archivists have to stress the evidential value of the records in order to sell this to the organization and the designer of the systems. One potential problem might be that requirements for archival records add costs to the systems. There was serious discussion by Institute participants about the problems in the potential jettisoning of "informational" value. In fact, most records with essential evidential value possess informational value; the most important records have evidential value.

Dollar addressed the archival description function and its methodology. Traditional archival description has focused on physical entity and the organizational structure of the records creators. Dollar was convinced about the substantial labor cost of description with its emphasis upon subject matter and the use of standards. He thought that traditional description practice needs to be transformed in the context of electronic records. Archivists need to shift emphasis from specific products such as inventories and finding aids and focus on such things as information resource dictionaries. Archivists must substitute computer searching for words as they appear in text for surrogates such as authority lists, using parallel processing and relevance feedback approaches. Dollar mentioned the utility of description standards being developed by the International Congress on Archives, the Association of Canadian Archivists, and the Society of American Archivists. Dollar wondered about how relevant these descriptive standards are for electronic records, emphasizing as they do provenance, hierarchical arrangements of the records creators, moving from the general to the specific, and other such issues. Dollar is worried that descriptive standards are totally focused upon paper documents.

Archival reference was the next archival function that Dollar considered. Archival reference seems to be supply-driven; that is, researchers find the records that they are interested in. Dollar thought that archivists must move to more of a demand-driven reference model, re-examining researcher expectations and requirements. Archivists must re-examine reference service, looking at the software environment of records, seeing reference operating within a decentralized archives storage and facilitating access (rather than serving as a gatekeeper). More of the burden of use needs to be shifted from the archivist to the users, a possibility that is made more clear by the nature of electronic records.

Archival preservation was then examined by Charles Dollar. Dollar commented on the erosion of the notion of permanent retention which is not achievable because of financial costs, changing the focus to "continuing value," a prospect that is especially relevant in electronic information systems because of their technology obsolescence. Dollar said that archivists must link continuing value to retention costs and redefine preservation. A better contemporary preservation viewpoint would be to prevent further damage, ensure the conversion of media, restore usability, and look at the physical carrier of information. Preservation really means providing access over time, this meaning readability, intelligibility (ensuring continuing use of software), both of these latter characteristics suggesting that archivists have to acquire new skills and tools than those that have been normally used in preservation.

Dollar concluded by reviewing a set of recommendations and guidelines that emerged from the Macerata, Italy group meeting that he mentioned earlier in his presentation (and that is described above). Archivists must redefine the public record as a transaction, with intervention at the point of transmission, and archivists identifying requirements for this to occur. He noted there was less agreement by archivists on the central repository issue. Appraisal must occur in the system design, emphasizing "continuing value." Periodic reassessment of information systems must occur. For description, metadata is essential and must be related to descriptive standards and the IRDS. Dollar mentioned that there was no clear view on the matter of archival reference in the electronic environment. In terms of preservation, there was more of a consensus about the matter of readability and intelligibility, although software functionality might be problematic. What, then, needs to be done? Archivists must define archival requirements, they must work in the standards arena, and archivists must seek new training (especially, information system design and operations research). The key question in all of this is the financial cost for media and software.

Dollar stressed that there are enormous responsibilities and reasons for the archivist continuing to play an effective role in the future. The concept of provenance is an extremely important view and perspective that the archivist brings to the management of information. Dollar was not concerned about the specific identity of the archivist, but he was concerned about the archival mission being continued.

Tuesday June 4 The Establishment of Working Groups. Ed Bridges then led a brief discussion about the two small working groups. One group was assigned to consider information technology and its implications for archival principles and practices. The other group was to consider information technology and its implications for state and national archival matters and issues; this latter group was to examine education, the definition of records, information policy, the role of professional associations such as NAGARA, and matters of advocacy on the state and national level. The initial assignment for these groups was to review the published reports that the Institute participants received (see Appendix Three), identify the variety of issues, identify what of those issues needed to be focused upon, and then to report back to the assembled group. The Institute participants indicated their preference for the groups and the Institute ended for the day with an organizational meeting of the two groups.

Ed Bridges suggested a list of draft reports and other requests that needed comments by these groups and the Institute in general:

1) NAGARA Committee on Technology recommendations for NAGARA activities and actions (one was the idea for NHPRC challenge grants for the establishment of electronic records programs);
2) NARA optical imaging study;
3) CART study on curriculum for electronic records;
4) NAGARA Committee on Professional Development's request for advice where to go beyond the Institute;
5) NHPRC research agenda for electronic records report;
6) Council of State Government study of state records laws; and
7) individual state archives planning documents, legislation, and the like.

Wednesday June 5 State Information Policy. Michael Hale, State of Florida, made a presentation on state information resource management and information policy. Hale is one of the leaders in the National Association of Information Resource Executives (NASIRE).

Hale started his presentation by describing the general political and related environment in Florida. He described the rapid growth of the state and the resulting constant change wrought by this growth. In 1981 the state government did a two year study of data processing. Out of this study came the information resources management philosophy in Florida and, in 1983, the creation of the Florida Information Resource Commission (IRC). This was an effort to gain control over data processing purchases. There is a Legislative Oversight Committee that champions the Commission.

Hale next described information resource management in Florida government. Hale reviewed the major responsibilities of the IRC, as established by statute: leadership and coordination, policies and standards, planning guidance for agency plans, training program, technical and managerial assistance, maintaining a state strategic plan for information resources management (IRM), security program, reviewing agency budget issues, and adopting rules to implement the act. The Commission is headed by the Governor and Florida cabinet members and there are twenty-five state agencies, four state boards and commissions, twenty states attorneys, and twenty public defenders that participate in the work of the Commission. There is spending of about $233 million annually on information technology in state government, not including the state universities and colleges which would add approximately another $200 million. IRM is defined in Florida as encompassing hardware, software, services, supplies, personal, facilities, maintenance, and training. Hale described the state's data processing environment, noting that there is a decentralized environment with seventeen data centers, four regional data centers, and nine state universities. He described the changes in the state government hardware inventory, noting the continuing large growth in microcomputers and local area networks. Current IRM expenditures are over $400 million.

Hale described the way that the Information Resource Commission operates. There is a state comprehensive plan and a specific statewide plan for IRM. Each agency is responsible for a functional plan and a specific strategic plan for IRM. These documents guide the agency budget, with follow-up annual performance reports and an annual IRM report. All of this operates on a two-year cycle. At present, in general, IRM is integrated into planning, budgeting, and management. Improvements have been made in the IRC process, specifically that it has become more strategic. Current challenges are the shortfall in revenue along with increased demands on revenues.

Hale then considered the directions being considered for IRM. The areas of major transformation are management philosophy (information is a major aspect that must be taken into account by top managers), planning (there must be greater commitment to using and monitoring the plan), systems development (a move from a programmer's discretion to more structured software engineering), security, and training (it is now on the bottom of the list and this must be changed). He emphasized increased productivity and return on investments that can be wrought by the proper use of IRM. Hale described how IRM was used to strengthen decision making about vocational education (measure program performance), child support enforcement (locating delinquent parents), pesticide management (quantifying risks and hazards), and workers compensation (identify accurate costs to employers). He described the Department of Health and Rehabilitative Services as a model user of the IRM philosophy. He described the functional structuring of state government, grouping agencies with common functions and responsibilities.

Hale described the areas where there need to be investments in IRM.

In priority order these areas were automating strategic applications, empowering knowledge workers, general software modernization, and infrastructure (networks).

Hale then talked about the purposes of IRM. He viewed IRM policies as being means to remove barriers. He reviewed specific IRM policy areas as determined to be priorities in Florida. The first priority was that of security. The IRC produced a document of approximately fifty standards and then issued a document on the implementation of these standards. Areas covered by the standards are access controls, personnel security, risk management, backup and recovery, strategic planning, and audit and certification. IRC requires an annual report from state agencies to indicate which of the policies and standards they are conforming to or are planning to conform to in the future. The objectives of the computer security program are to assure acceptable levels of data integrity, data availability, and data confidentiality.

The next priority area, according to Hale, was the Information Systems Development Methodology (ISDM) Rule. The goal is to define the elements used by Florida state government in software engineering, including the definition of the methodology they are using and implementing and to define what the full life-cycle of the software is for that system. In this rule, agencies must define their purpose and objectives, the applicability of the system, the timetable for implementation, quality assurance, and estimating the project and the needs for the management of the project. Hale described the planning and development life cycle for software systems, stressing the opportunities that archivists and records managers have for influencing the software development. The life cycle is planning, analysis, design, develop and test, and implement. This led to a brief discussion by Institute participants as to what archivists and records managers should do in this: can they do more than add a sentence or two that states that archival and records management requirements be met?

Another priority area of activity for Florida was computer networking policies and standards. Florida has followed the federal government in the use of the Federal Information Processing Standards (FIPS) and the Government Open Systems Interconnection Protocol (GOSIP). The objectives of this initiative were to solve vendor incompatibilities, share common information, share common applications, and work cooperatively.

The final policy area was public access to electronic records and privacy. The objectives of this policy area are to ensure public access to information, guard against unauthorized disclosure, and maintain confidentiality of private data. The private sector, such as COMPUSERVE, is providing public access to the state government records, with the state receiving a part of their cost. An issue in the future will be to consider whether the state will charge more than costs, which is the baseline operating procedure at present.

Hale concluded his formal comments with some notions of the future. He especially emphasized the need for the state to bring together interested and specialized interest groups, such as archivists and records managers, to work out statewide standards that serve the needs of the state government. Areas of emphasis in building for the future are data dictionaries, data directories, data integrity, greater management involvement in data issues, and working with agencies grouped functionally. There then followed a general discussion session about Florida's IRC and the general information resources management and policy. He responded to a question about how archivists and records managers should approach IRM people. Hale stressed that archivists and records managers need to demonstrate the need for the evidential value of records. The matter of accountability of government, Hale believes, will be the great issue of the future and archivists and records managers obviously have a role in this matter of accountability. Archivists and records managers must present clear ideas and concerns. Hale also stressed that the archivist and the records manager must clearly convey the need for the importance of a working relationship with the data processor and related information professionals. He mentioned that each agency is required, by law, to designate an information resource manager. There was discussion about the need to move records management and information resources management into the management area and out of the clerical realm.

Thursday June 6 Strategic Planning: Introduction and Model. John Prescott, from the University of Pittsburgh's Katz Business School, provided an overview of strategic planning to Institute participants. He started with a consideration of the general importance of strategic planning and, as well, noted that strategic planning and management cannot be done very quickly -- that it is a continuous process.

Prescott reviewed the steps in the strategic management process. First, there must be an articulation of the vision of the organization's leader and the organization itself. Second, there must be an assessment of the competition to the organization. Third, there is the need to re-evaluate the mission of the organization. Fourth, there is the need to establish strategic objectives. Fifth, choices must be made about the strategic objectives. Sixth, there is the need to implement the strategy. And seventh, there must be evaluation of the implications of the plan in the organization's performance. In all of these, issues can drive the steps.

He described the vision as the dreams of an organization about what it would like to be. The leader's vision sets the context for what actions an organization takes or will take. Visions are usually very idiosyncratic, and they may or may not have any basis in reality. These visions are subject to unexpected change from the leader. These visions are also often not very well articulated to the organization's staff. The reason for the importance of the vision is that if there is no understanding of the leader's vision, there might be frustration and confusion. These comments prompted a series of questions about who the leader is or should be and, in a state government context, in which the state archives might be part of a larger parent organization, where leadership and the vision emanates from. Prescott noted that there are multiple layers of leadership, that each person in his or her position must have a vision, but that there must also be kept in mind the various mandates from the organization and from outside the organization. This led to a discussion about the matter of conflict between professionalism and a specific organization.

Prescott brought the discussion back to what role the leader's vision plays in the strategic planning process. One of the problems that was brought out in the discussion is the sometimes internal inconsistencies in a particular vision. There are four different roles of the leader in the planning process: 1) the master strategist who directs all and has little influence from others; 2) the delegator who is uninvolved in the actual process, but the problem may be a lack of buying into the final product and process results; 3) the collaborator who brings the staff together and argues and compromises the process through, a process that can be very time-consuming and potentially destructive; and 4) the champion who has specific ideas but recognized that there are good ideas that belong and allows leaders to emerge and to bubble to the surface, although this may also lead to the splintering of an organization. All of these roles have, therefore, both positive and negative matters.

Prescott then moved to a consideration of an organization's assessing its competition. This aspect of the process is considered the major or core component of strategic planning. There must be internal analysis. This involves starting with looking at competencies and resources of an organization. Competencies are defined as what an organization does well. There must be an analysis of the organization's present strategy and culture. Internal assessment also requires looking at how the organization's performance has been measured, identifying key performance indicators, and providing information about trends. Finally, there must be an examination of values, aspirations, assumptions, and ethics of the organization's leaders and managers. The next major aspect of assessing an organization's competition requires looking at the organization's external environment. This includes the macro environment, the organization's industry, and that organization's stakeholders and networks.

Prescott briefly discussed the notion of an industry assessment, a process that includes considering the threat of entry to an industry, the bargaining power of the suppliers to an industry (in state archives this could be the state agencies creating the records, the funding agencies, businesses providing supplies, voters, and labor [the archivists]), the rivalry among the groups currently in the industry, the bargaining power of the customers, and, finally, substitute products. Prescott urged that it is important to go through a process of evaluating or assessing one's industry: what is the underlying structure of the industry? what industry trends are apparent that might change the underlying structure? how might foreseeable changes in the social, political, international, and macroeconomic context impact the industry? what are the goals, assumptions, strategies and capabilities of the existing and potential competitor in the industry and their likely future behavior? what are the critical requirements for future success? given the analysis of the industry, competitors, and broader context, what range of strategic alternatives is available to organizations in this industry? A good industry analysis provides a good structure for identifying key players and organizations.

Prescott then considered the outcomes of doing a strategic assessment. It will help to identify the organization's core competencies, he noted. This allows organizations to visualize other activities that it can do that doesn't limit it in many ways. This led to a discussion by the Institute participants about the archivists' core competencies, leading to suggestions about the selection of continuing valuable information, accountability and evidence, the identification of a real, genuine document, providing means for the functioning of government in event of disaster or other problems, and so forth. It will also help to identify strengths and limitations, as well as opportunities and threats to an organization. More importantly, this will help to define what an organization's business is or should be. Defining this means looking at customer functions, customer groups, and alternative technologies. Another major outcome is identifying an organization's competitive advantage.

Prescott finally considered the matter of evaluating an organization's strategic issues. Issues should always be present in any aspect of a planning process. There are always fundamental choices that an organization faces in its planning and work. What services should an organization provide, to whom, by what methods, at what costs, and so forth? There are three kinds of issues. First, there are those that require no action at present but need monitoring. Second, there are those that can be handled as part of the organization's regular strategic planning cycle. And, three, there are those that require urgent attention and must be dealt with out of the normal planning cycle. The Institute participants identified a number of potential issues. Prescott raised the question about where issues come from. In many cases, people think about issues as problem-driven, but they can also be created by the organization as a way of assisting the organization to think about and plan for the future. He also considered the need for organizations to be able to classify issues and determine whether they are immediate (less than two years) or future (more than two years down the road); this is not to mean that they are resolved or implemented in this time period but rather where the organization puts its time and resources to begin dealing with the issues. Prescott described the kinds of information needed in identifying issues, then he discussed the need to prioritize issues. The benefits of focusing on issues is to enable discerning what is important, to enable considering the issues not the answers, prompting tension necessary for change, providing the clues as to how to resolve issues, and making the strategic planning process "real" because it emphasizes real or hard issues.

Thursday Evening June 6 State Records Laws. On Thursday evening, an elective group of fifteen met to discuss concerns about the inadequacy of current state records laws. Ed Bridges reviewed a position paper currently before the NAGARA Committee on Information Technology for a study of current laws and problems associated with these laws. The proposal calls for a broadly consultative study through the Council of State Governments involving state officials, attorneys, and information systems specialists.

Bridges reviewed his preliminary research about the background of current state records laws through three different sources: (1) laws establishing documentation requirements for public officials; (2) records retention and disposition laws that appeared from the mid 1930's on following the enactment of federal legislation governing records retention and disposition; and (3) definitions of records used with open records laws which have been adopted since the 1960's. In his state (Alabama), and in a number of others he has looked at, Bridges found that these laws are often in conflict with each other and fail in many ways to provide clear guidance about what is a record, especially in an electronic information environment.

Richard Harrington confirmed these observations about the inadequacy of many of the current state records laws based on his involvement in an Association of Image and Information Managers (AIIM) study. The purpose of the AIIM study is to develop performance standards for optical systems which provide reasonable certainty that records on these systems are acceptable as records under state records laws. Tom Mills raised a concern about the involvement of experienced and respected information systems research specialist(s) who can help ensure methodological rigor in the study. At the conclusion of the discussion, there was general agreement that the proposed project (with the Mills modification) was a potentially valuable one for state archival programs. Ed Bridges said he would draft a statement about the project for consideration by Institute participants at the wrap-up session.

Friday June 7 Strategic Planning Continued. Prescott continued his discussion of the strategic planning model, examining the matter of strategic choices. He initially considered corporate-level constraints, the emphasis on sharing resources and the demands on administrative systems. There was a discussion of where state archives share resources. Prescott then discussed strategic options that an organization could use in its choosing directions to move. The strategic options are as follows: 1) grow; 2) maintain; 3) shrink; 4) turn-around; and 5) abandon the business. What are the generic approaches that an organization should use in considering these options? These approaches are low cost, differentiating the business, or focusing on an area. One way of differentiating a business would be looking at the issue of speed in delivery of services. The participants discussed other examples such as records storage, storage of magnetic tapes, and providing a product to private vendors for their re-sale and marketing. Prescott urged an organization to follow consistently at least one of the generic approaches to strategic options. If an organization is not following one of the approaches, it is not being efficient nor is it possible to follow a specific strategy in a coherent manner. This led to another discussion by Institute participants about the issue of defining an organization's business. The matter of what strategic choices an organization follows will determine the meaning of the overall strategy an organization will or might follow.

Prescott then considered how a strategy materializes. An organization starts with an intended strategy, but it can be modified by unrealized strategies before becoming an actual strategy that is followed.

At this point, Prescott began a consideration of stakeholder analysis. A stakeholder is any internal or external entity upon whose actions the organization depends or who in turn depends on the organization for the realization of some of its goals. An organization has both supporting and resisting forces bearing down on an organization. The future outcome of an organization's strategy is the collective result of all forces brought to bear on it by its stakeholders. The validity or viability of a specific strategic plan depends on assumptions made about the stakeholders.

Prescott then outlined a process that can be used to analyze stakeholders. First, an organization should identify its stakeholders. Second, it should map out the significant relationships among stakeholders. Third, an organization needs to examine these relationships for opportunities and threats. Fourth, an organization should identify assumptions about stakeholders and the forces they exert. An organization must understand the current status of stakeholder behavior, understand the possible future status of stakeholder behavior, and understand the underlying causes of stakeholder behavior. Prescott reviewed a series of specific questions that must be asked about each stakeholder. Fifth, an organization should assess the relative importance and certainty of assumptions about the stakeholders.

Prescott then outlined an exercise for the two small working groups in the area of stakeholder analysis. The issue considered by the groups was the archival management of electronic records. In the exercise participants were asked to identify stakeholders in the issue of electronic records. After identifying the stakeholders, participants were asked to evaluate how these stakeholders might evaluate the performance of the state archives in this area. Then participants were to identify the one or two most critical assumptions about these stakeholders that are either supporting or resisting. Then, finally, participants were asked to identify related issues about electronic records. What do archivists see coming up in this area?

After a brief meeting, the two small working groups reported about what they came up with in doing this exercise. One group identified six stakeholders: state agencies, other information service providers within state government, private information industry, public and internal government users, resource allocators, and good government industry groups such as Common Cause and the American Civil Liberties Union. This group identified related issues as being educational programs' needs, better analysis of customers' perception, and a rethinking of archival practices. The other group focused more specifically on the matter of electronic records. Stakeholders identified included the data processing community, state and local government agencies, state legislature, administration, and the research community. This group also identified related issues such as the role redefinition of archivists, communication of the new role of archivists, and developing ways to support the new role via training and education and greater participation in policy making. Prescott noted that the state archivists had not identified themselves as stakeholders. He stated that it is important to put their own institutions into the list of stakeholders.

Friday June 7 Information Technology Forecasting. Ken Sochats, Department of Information Science of the University of Pittsburgh School of Library and Information Science, made a presentation on information technology trends and their forecasting. His presentation was broken into two components, one being the use of technology in archives and the other being the archival considerations of the technology itself. He mentioned the breaking down of the boundaries between systems and archives, that the systems may be set up to move virtually immediately from creation to the archival records. Coming with this development will be a move from a look at individual documents to wanting access to large amounts of documents. There is also the growing inter-relatedness of information types. These were the kinds of preliminary comments Sochats made before going into the body of his main comments.

He first briefly looked at archives as systems: input, processing, storage, management, and output. He sees one of the big problems continuing to be a lack of knowledge about actual use. He emphasized the need to focus on outputs first and then to move backward in the development of systems.

Sochats moved to a brief discussion of important evolving systems technologies. The first area is artificial intelligence and expert systems. Three problems exist here: the impact on the archival record, the use of the expert systems in archival management, and the delivery of services (at the interface between the archivist and the researcher); this latter point emphasizes the potential value of the archives for developing and using such expert systems. The second area is the visualization of data in order to summarize and present such data that normally consumes a large quantity of traditional records forms. These kinds of systems will aid archivists to get a better sense of relevance. The third realm is that of hypermedia, such as multimedia integrating different media forms. And last is the area of groupware, those systems which permit people to work together. In all of these systems the real determiner of utility ought to be the end-user. A question was asked about how should archivists deal with the problem of taking the risk to predict where the information technology is going and how they should use their limited resources. Sochats answered that one possibility was diversifying the risk through group projects and endeavors. Over time storage, transmission, and processing capacity will increase, while over time the costs per unit of storage, transmission, and processing will decrease; the risk is knowing where to jump in and what technology to use.

In any technology progress moves along a certain pattern. First there is experimentation, then the technology becomes optional, then it becomes a standard, then a family of products is build around the product, and, finally, scaling where the next release is upgraded and can be easily transferred and used. What is needed to be watched for are those systems that will survive through "upscaling."

Sochats then commented on the future of information technology. Speed and capacity will continue to grow quickly. There will also be a continuing and increasing emphasis in the quality of information and the record. Sochats uses the transportation analogy to the interstate highway system showing the increasing use and expansion of information technology. As part of this description, Sochats emphasized the nature of the information that will be integrated in these systems, including data, text, documents, graphics, images, audio, and video. This integration is similar to the "one-stop" shopping" concept used in malls and supermarkets. This kind of integration will be viable by the mid-1990s, the late 1990s at the latest. There was some discussion about the governance issues for the development of the telecommunications networks that will allow for the use and transmission of these more fully integrated systems. Another question was asked relating to the issue of centralization versus decentralization of information. What Sochats is talking about is the greater centralization of information through the integrated systems and networks. Some of this is the result of non-technical matters, such as behavioral or cultural issues.

There is a decided shift away from artifact preservation to content preservation, according to Sochats, eliminating the concern about format or even quality of the information. From the information technology perspective, the archival system has a number of goals: the homogeneity of storage, a uniform classification system, consistent access procedures, communicability, transformability (the changing of media or the changing of storage means), and processability. Sochats mentioned that he is convinced that there will be some records that will be completely stored in electronic form, especially for internal systems. What function will the paper records serve in the "less-paper" society? One issue here is the matter of paperless organizations not being developed until everyone can afford the supports for the system.

Sochats then posed some questions about what in the electronic information system should be put in the archives. Should it be what is visualized on the screen, or what is behind the screen, or something else?

Sochats reviewed what are the main issues for electronic information storage. The main matters are those relating to density, formatting, accessibility, processability, transformability, upgradability, and enhanceability. Many of these are activities that cannot be done with traditional paper systems. What are the media that are highly processible? These media are microfilm, semiconductor, magnetic disk and tape (the most popular at present), and the optical disk. Sochats reviewed the newest and growing technology of optical media. He then moved to considering data communication technologies, analog (voice and video) and digital (computer). There has also been the move to integrated systems digital networks (ISDN). Analog technologies seem to be consistently losing to digital technologies except in the area of voice recording. Data communications services are rapidly expanding into FAX networks (which will probably stay around because of their low-costs), electronic mail, and value-added networks (VANS, like telnet, and MCI, as just two examples). Integration will make everything more valuable.

Sochats summarized with his opinions about technology forecasts and subsequent recommendations. Magnetic storage will continue to be viable. Speeds will be faster, storage capacities larger, and costs cheaper. Processors will get less expensive and will be put into other devices. Sochats sees more and more of a universal communications networks.

Friday June 7 Wrap-up and Conclusions. Ed Bridges led a discussion evaluating what had been done through the first week and looking toward the next week. Each of the two working groups gave a report. The state and federal policy group had broken into smaller working groups, including one on funding. The group also discussed the notion of permanent or continuing value. It also discussed use of and access to electronic records. Another of this group's small committees was looking at ways that the archivist can contribute to information policy. Another small committee was looking at the nature and importance of education, especially in light of electronic records. Another area that was being looked at was the development of a checklist of aspects that the archivist can contribute to information management and policy. The working group on the implications of electronic records for archival work noted that it had divided up the readings and had developed an initial group of about thirty-five topics and issues. Some specific projects were identified for further work, including considering the matter of challenge grants for the development of electronic records programs, research and development programs for archival electronic records, privacy and access, the involvement of archivists in the systems design stage, and the implications of continuing value versus enduring value.

Monday June 10 Elements and Requirements for a State Electronic Records Program. Margaret Hedstrom, New York State Archives and Records Administration, presented a morning session on electronic records programs, their elements and requirements. She started by noting that there is no ideal program because of considerable variation among the states in terms of policy environment, the organization and nature of the archives/records programs, and related matters. She urged that, instead of a model program, state archives need to enter into a problem solving mode. She also acknowledged the influences of David Bearman and John McDonald on her work and the comments she was presenting to the Institute.

Hedstrom then briefly described the "successful programs" at the United States and Canadian National Archives and the state archives in Kentucky and New York. She described their common elements as being the following: avoidance of a project mentality and a commitment to solving problems rather than searching for models elsewhere; sustained effort (it takes a long time to get one of these programs going); the acquisition of a minimum threshold level of resources dedicated to an electronic records program; and the dedication of people and a program to electronic records. She noted that while there has been considerable discussion about electronic records, there has been little follow-up in the development of actual programs.

She then moved to a brief overview of the elements of an ideal electronic records program. First, it is helpful to be operating in an environment where there is a coherent comprehensive state information policy. Second, there needs to be a clear definition of electronic records. Third, the archival program has the authority to designate records as archival. Fourth, the archival/records program administrators and staff need to possess a thorough knowledge of the state information technology environment. Fifth, the archival/records programs must be able to provide a variety of useful services. Sixth, the archival/records program must have sufficient staff with adequate training. Seventh, the archival program must be acquainted with and known to the users of electronic records. Eighth, the archival program should have a record of success. Ninth, the archival program can adapt to new situations and can innovate. Hedstrom then moved to consider each of the elements in order.

The first area that she considered was the state information policy environment. Some of the elements of this area are as follows: information needs to be seen as a resource, because this ensures a higher attention to electronic records concerns; the environment delineates responsibility for the management of government information, putting the archival program at the point of determining what responsibilities it wants; records should be seen as being in all formats; it is important that the archives programs have the authority to define a record; the environment is one in which the need for government information to agency missions and government services is stated and emphasized; state agencies are required to maintain adequate documentation, including holding government officials accountable for adequate record keeping; the state government provides a statement that public records are available to the public, defining the level of access and privacy concerns; the state government supports measures to avoid unnecessary costs in the management of records; the environment should require actions by the custodians to safeguard the legality of electronic records; and, finally, the state government gives the archival program authority to designate records as archival and to set standards for their care.

Hedstrom then presented what she thought to be the two main issues of information policy. Is there an information policy? It is important to have or be working on such a policy because it raises the visibility of information management issues and brings many parties together. This presents opportunities for the archival and/or records management program to deal with issues like electronic records. There was discussion, however, about how the state archives can develop an electronic records program in a state government where coherent information policy does not exist. Such a policy is supportive, but it is not necessarily essential. Discussion also related to the need to be opportunistic or innovative, especially since electronic information technology represents a constantly changing environment. The other question is whether the state information policy is supportive of archival/records management objectives?

Hedstrom then talked about the issue of defining a record. She sees three criteria for the definition of a record in the electronic information environment: the record policy is issued under the authority of the archives/records management program; it can be easily understood by people; and it can be implemented in systems. The traditional definition of a record has been that it is any physical form or format, made or received by an agency, created in the course of public, official, or government business, and appropriate for preservation as evidence of policy, operations, and decisions. This traditional definition has problems when applied to electronic records. There is a tendency by records programs and program managers to stop at the notion of form or format before considering the other aspects of the definition. The traditional definition does not clearly differentiate external data from records. It does not eliminate transient material from definition of records. It has been difficult to determine who should define appropriateness of records for preservation and the definitions of adequacy of definition has been too vague. Another key issue for accountability and documentation is whether electronic information is actually used in the course of official business to make or document policies and decisions. There was discussion by Institute participants about the needs to define adequate documentation from an archival perspective. There was also discussion about the potential interest in capturing both the transactional data as well as the actual data base. Despite all the problems of the traditional definition, it is still workable in the electronic environment if there is some additional detail.

Hedstrom also noted that all of the changes will take place over a long period of time because they are affecting behavior and attitudes; archivists need to participate in shaping such behavior and attitudes. She also emphasized the need to articulate what it is that archivists want to capture in these systems; along with this are the issues of when and how to capture this desired information.

Hedstrom then moved onto a consideration of capturing content and context of information in electronic systems. Traditionally archivists have done appraisal retroactively, but archivists have to move to consider the option of developing criteria issued by archives and implemented by program managers. There needs to be consideration of delegating authority to designers or operators of systems. Archivists have followed a content-based approach, an approach most appropriate for data archives, libraries, archives that have a cultural mission, and archival records that are retained primarily for their informational value. There must also be the contextual approach that is most appropriate for archival records maintained for their evidential value, for defining the legality and authenticity of a record, and for the use of electronic records for audit and accountability. The content approach can be carried out retrospectively; the contextual approach requires more involvement with the systems designed.

Hedstrom, after a lunch break, began consideration of the practical matter of developing an electronic records program. She first mentioned the kinds of useful services that an electronic records program should provide. First, it should have an information locator system. Archival programs should move away from doing inventories of databases and systems. The program should issue, instead, reporting requirements about agency information systems. Hedstrom described the effort underway in New York state to identify the ten to twenty major functions of state government that are supported by automated systems and then to focus on the archival evaluation of these systems. Second, it should issue guidelines for the definition, authenticity, and protection of electronic records. Three, it should produce guidelines for the procurement and design of systems to conform to record keeping requirements. She noted that there has been limited success in archivists and records managers being involved in the design of automated systems and, as well, the appraisal process is fundamentally changed from waiting for some time to pass and being more current in determining a system to producing archival records. Fourth, it should provide improved access to electronic records. She noted that it is not feasible for archives to take into custody many electronic records, but that the state archives must be able to take some electronic records of agencies and programs that go out of operation. And fifth, and finally, it should have the ability to preserve archival records. The matter of seeing that state agencies comply with archival guidelines was discussed. Hedstrom noted that the traditional paper records became critical when filing space was used up, and that electronic records become critical every time there is a change in software and hardware.

Hedstrom reviewed a series of questions that an archives/records management program should ask of itself in preparation for developing an electronic records program? Does it have the definition of a record? Has it defined "adequacy of documentation"? Does it have the designation of records as "archival"? Is it involved in the life cycle management of records, considering cost reduction measures? Does it have provision for the protection and security of records? Is it requiring agencies to transfer archival records to the custody of the archives? Is it requiring agencies to retain records designated as archival?

Hedstrom also noted the need for different states to develop different strategies for developing electronic records programs. Some work in centralized, others in decentralized environments. Some states have centralized controls over new information systems development and the procurement of hardware and software, while others have no such systems. Some states do not emphasize accountability for documentation, others do.

Some states have a clear definition of the archives records program roles and responsibilities, others do not. Hedstrom also reviewed some of the varying technological issues as well across states. One point she made was that state governments are using a wide range in age and sophistication of the actual systems; information technology forecasts need to be viewed in this light.

Hedstrom then began a discussion of electronic records program functions. She started this part of her presentation by saying she believed it is important for all state archives to have at least set aside some resources for an electronic records program. Hedstrom also noted that it is very important to become knowledgeable about information technology, the basic terminology and trends. The program functions needed for working with electronic records in a systematic fashion are policy, regulations and guidelines; records identification; appraisal of archival records; description and documentation; provision of access; preservation of physical media; and monitoring compliance with record keeping requirements. She concluded this part of her presentation with some comments on program development issues. Hedstrom mentioned that the concern about whether the electronic records programs should be a specialized program or integrated across the agency is an important consideration; the long term objective should be, she noted, the long-term integration of the program, although she believes it is necessary to start with a specialized function. The reason for integration is the fact that electronic records cut across all state functions and need to be understood in the light of an agency's full documentation. Another issue is identifying the state archives' priorities; Hedstrom suggested the importance of doing a few things well rather than launching into a new scale program and trying to accomplish too many things at once. She then turned to the staffing problem. It is important, she noted, to have some staff with technical skills. It is also important to find people with analytical skills and who are innovative; this rubs against what kinds of people the profession normally has attracted, those who like to follow rules. Some of these people can be attracted from data archives, people with at least some of the requisite technical training and experience. The program must also have access to computer technology.

After a break, there was a brief discussion by the Institute participants about a variety of related issues. Hedstrom reviewed the work of the SAA Committee on Automated Records and Techniques curriculum conference and subsequent work. This led to a general discussion about the need for stronger graduate and continuing archival education. Another issue that was discussed was the need for external funding to get electronic records programs started in state archives and other archival programs. Hedstrom noted that one of the problems with grant funding is the fact that many "programs" are people-oriented and when that person leaves the program ends with him or her. Hedstrom also reviewed the proposed research agenda from the NHPRC-funded conference.

Tuesday June 11 Information Technology Standards and Standardization. Michael Spring, a professor in the University of Pittsburgh SLIS Department of Information Science, made a presentation on information technology standards and standardization. Spring started the discussion by asking the Institute participants what they were interested about the topic of standards and standardization. Spring started out with some relevant quotations from various experts and studies about the nature of information technology and its effect on recordkeeping. Spring said he wanted the Institute participants to remember two things: his charge is to speak about change and the data explosion is being tamed.

Spring first reviewed the history of documents. He noted that through history there has been resistance to change in information systems. Spring also stated that new technologies in and of themselves do not cause changes, but the revolutionary changes occur when people learn how to use the technological systems. Major information technology changes in recent years include during the period 1950-1970, the photocopier; 1970-1990, the microcomputer; and 1990-2010, the major change will be the Integrated Services Digital Network (ISDN). The communication infrastructure is changing because of the ISDN. ISDN will dramatically change the kind of information that will be available to individuals via the telephone system. The networks will allow the transmission of information at rates much greater than any other systems.

Spring also compared the differences between industrial and information products. This led to a consideration of the culture of information. Some items, such as FAX, have been adopted very quickly. Some resistance continues in the areas of copies versus originals and the ownership of information. New behaviors are being learned: copy and modify don't create; outline and fill in as appropriate; and think in the most appropriate mode (graphical, visual, textual).

Spring then began a discussion of the standards that are emerging to support electronic documents. These include the standardization of human machine interfaces (a future in which we point and tell the computer what to do, use window servers, and all equipment possesses a standard look and feel), the standardization of machine interfaces (such as OSI, MAP, and TOP), and the standardization of data forms (such as SGML, ODA, and ODIF). The latter is the arena that makes everything else work. It is this latter area that archivists and others should be most concerned about. The market is a converging one, with both actual and defacto standards, leading to compatible approaches, especially interfaces, that will eliminate the need to learn specific systems. The learning curves for new packages and systems will be reduced to zero. In the area of machine interfaces Spring described the move from vendor-dominated systems to the Open Systems Interconnection (OSI) that cuts across specific vendors. Spring also described some of the movement towards specific kinds of profiles built on the OSI model layers. Spring reviewed the various trends and issues in the standardization of document forms.

Spring then reviewed the key standards for the exchange of information. He described standards for page description (Interpress, Postscript, SPDL), document description (DCA and RTF, SGML, ODA/ODIF), document processing (FTAM, MHS), record management (IRDS, NDL, and SQL), abstract syntaxes (ASN.1, BER), and interconnection for exchange (ISDN, TCP/IP, and OSI). Spring discussed the potential for using different standards for putting in attributes for the definition and use of documents; this opens up the possibilities for archivists striving to develop attributes that meet their needs.

Spring concluded with some discussion about the future of documents. First, there will be meta documents that bring together internal functions, capabilities, and so forth. Second, there will be living documents that have process nodes, as well as corporate or aggregate authored documents. And three, there will be object based documentation that include private data, restricted processes, and compound recursive structures that can be accessed by certain people. What does this mean for the archivist? Archivists can react in three ways. First, archivists can say that they are in a transitional stage, meaning that it all will be worked out eventually. Second, archivists can say that they are in the midst of fundamental change, that the amount of documentation is increasing, that the nature of documentation is changing, that the technological base of documentation is changing, and that the importance of documentation is changing. All of this means that the percentage of information that should be saved should be decreasing because so much of it is now copied and reproduced. Finally, Spring concluded about what can be done tomorrow, the third reaction. Archivists can develop a plan for media and message transformations. They can plan for assuring standards that aid the archival process. He stated that archivists no longer have a millennia media, that is a media that will last as long as a thousand years. Things need to be moved from one media to another. Archivists need to pay attention to how things are stored at present.

Wednesday June 12 Systems Design for Archives. Ken Sochats returned to the Institute to make a presentation on the topic of systems design for archives and archivists. He started out by noting that archivists need more analysis, design and experimentation, multiple models for archival systems design, and a variety of other initiatives. He then suggested some needs that archivists need to consider in the realm of theory, mission, models, and tools. These are needs because they are direction setting and because it is useful to have multiple views for exploring research and developing techniques. Without such elements there can be chaos. Practice is applied theory, and theory will assist archivists to become more effective in providing services. These comments led to an animated discussion by Institute participants about the role and nature of theory in archival practice. From a systems perspective an individual must always ask the question, who didn't I serve? This comes back to the very basic importance of theory, research, and analysis. One area of great importance for archivists is developing a solid model of what information is, how it is used, when it should be destroyed, and so forth.

Sochats discussed systems components: input, processing, output, storage, control, environment, and subsystems. Control relates to elements such as objectives and standards that allow the evaluation of the effectiveness of a system. The environment relates to whether a system is closed or open (open systems are sensitive to their environment and adaptive, closed are not). Systems are generally oriented to a product or a function. Systems operate within structures that are either hierarchical or matrix in nature. In doing systems work there are any number of levels that the analysis can be stopped; the level that works effects the amount of detail or specificity that archivists will have in systems work. Until there are serious problems in a system, it is unlikely that the system will be changed. Sochats also presented the concept of granularity, a concept borrowed from science that enables individuals to determine what level of detail they must consider; for example, if an individual is studying organizations he or she doesn't have to know how an individual works. One example that could come out of systems research about an archives is the position that an archives should have within an organization. The kinds of research that could be done for this example are 1) descriptive; 2) problems (what are the problems?); 3) benefits (what are the benefits that result from their administrative placement?); 4) synthesis (are there factors common to all regardless of their placement?); and 5) model (from the synthesis create a model for archival placement). One question about this is why haven't archivists done such basic research. Sochats emphasized that archivists must conceive of a greater system that they are part of.

Sochats, in the interest of time, began a discussion of systems life cycle and design. The first area that he commented on was the notion of the systems life cycle, urging that archivists must also plan for a system's death and begin planning for a new system that will take its place. This is something that is not done as often as it should be. He then talked about the learning hierarchy, from data to information to knowledge to wisdom. People learn from models and wisdom, the ultimate, is a kind of meta-model, the point at which we learn how to use and manipulate models. Sochats discussed the notion of the value of information and how decision theory can support these value notions. He described decision theory (information has value only if it affects a decision), market value (information has the value that people are willing to pay), and multi-attribute value (information has characteristics or attributes that make it valuable). The attributes of the later value scheme are, for example, accuracy, precision, timeliness, completeness, relevance, bias, and form. The idea behind multi-attribute value theory is that people build a ranking scheme.

Sochats then outlined the steps in a systems design. These steps were outline the situation, study the current system, define the requirements, identify alternative solutions, select the leading solution, design system details, acquire system resources, construct the system, install the system, training, and evaluation. He emphasized the situation outline approach as including the reason for the systems design, goals and objectives, problem identification, and the scope of the system. Some of the attributes of a particular systems design cannot be very effectively measured but must be taken on good faith. He then reviewed the variety of techniques that can be used in systems analysis and design techniques, including flowcharts, data flow diagrams, hierarchy plus input and output processing (HIPO), procedure analysis, forms analysis, and computer-aided design tools. Sochats considered systems design issues including scope, clustering (what kinds of functions and processes go together naturally?), allocation of functionality, and systems intelligence. He concluded with a brief commentary on the variety of skills that systems designers use, such as ball-parking and rule-of-thumb reasoning.

Thursday June 13 Strategic Planning: Pointers for State Archives Planning. John Prescott returned to the Institute to provide some concluding comments on the strategic planning process. He first reviewed umbrella concepts for managing the planning process. He considered the following processes: communications, information systems, cross-functional teams, delegation, issue management, and plan for planning (including updating).

This led to a variety of comments from the Institute participants about their experiences in planning in their organizations. Prescott considered the matter of how often a strategic plan should be done and updated. He described some studies that had been done on planning burnout, where organizations try to repeat the entire planning process every year. The matter of revision and update is a variable one according to an institution's environment and needs. Strategic planning can often drive out strategic thinking. He mentioned some of the things that should indicate the need for planning: changes in performance issues and the development of new issues.

Prescott then discussed the matter of establishing a strategic planning agreement. First, the organization must establish the worth of the strategic planning effort. Second, the organization needs to decide which bodies, units, groups, or persons should be involved in or informed about the process. Third, the organization needs to outline the specific steps to be followed. Fourth, and finally, the organization must agree on the form and timing of reports. Activities, involvement, and timing must be carefully through through. Organizations becoming involved in planning also need to have agreement of support, both in terms of political and equipment, before planning is started. The benefits of establishing such an initial agreement are that it introduces the concepts of strategic planning, it develops an understanding of what it means in practice (as opposed to the theoretical applications of such planning), it helps thinking through some of its more important implications, it develops a commitment to strategic planning, and it helps the reaching of an actual agreement. It is important to think through at the beginning some basic concepts, such as what a mission is. One of the biggest problems in strategic planning is the need to realize that there will be winners and losers in the outcomes. Prescott also talked about the differences between strategic and operations planning. The process of strategic planning cannot be more important than the outcomes, otherwise the planning can fail.

Prescott next turned to key human problems that must be addressed in strategic planning. With individuals the following kinds of problems need to be kept in mind: people have limited abilities to handle complexity; individuals are highly adaptive and do not recognize gradual change; individuals withdraw, project, and rationalize in crises; individuals lose consciousness and concentration as they gain competence and repeat tasks; and commitment increases as people take public, binding and irrevocable actions. In considering individual problems organizations need to redefine error, providing much greater latitude for making mistakes. Groups also have problems. They impose strong pressures to conform; groups try to minimize internal conflict (meaning some critical issues might not be considered); and groups become homogenous in two to three years. Organizations also have problems in such work. Their problems can be that strategic planning systems often drive out strategic thinking; readers of statistical reports can become numb to the messages in them; specialization filters perception and constrains behavior; and structures and systems can become substitutes for leadership. Finally, communities can provide problems in planning. Communities are composed of individuals, groups and organizations, and therefore represent an accumulation of the characteristics and difficulties; most organizations in any community represent solutions to "old" problems (any solution sets up a whole new set of problems); no organization in any community is likely to contain any important problem, in other words, problems spill over to other areas; and, in most communities, no one person, group, or organization is in charge.

Friday June 14 Small Group Reports, Institute Wrap-up, and Institute Evaluation. On this final day of the Institute, three activities were carried out. First, there was a series of reports by the small working groups; these reports, on a variety of topics, have been included in Appendix Four. Second, the Institute participants completed an evaluation of the Institute; a summary of this evaluation is available from the Institute reporter (Richard Cox). Third, and finally, the Institute participants discussed the Institute and ideas for the 1992 final phase of the Institute. Most of this final discussion was about how participants from the 1989/90 Institute would interact to the 1991 Institute participants.

APPENDIX ONE

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APPENDIX TWO

Schedule for Advanced Institute for Government Archivists

June 1991

Monday June 3

9 AM Welcome to the School of Library and Information Science (Toni Carbo Bearman, Dean)

Orientation: Institute Purposes and Related Information Technology, Information Policy, and Other Activities (Edwin C. Bridges and Richard J. Cox)

Review of First Institute (Bridges)

Other Business (Cox)

12-1:15 PM LUNCH

1:15-4:30 PM State Status Reports (Bridges and Institute Participants)

Introduction to Small Group Assignments (Bridges)

1. State: Needed elements for a state electronic records program
2. National: Areas where state archivists need to be involved in affecting electronic records management (such as representation, standards and technology, educational programs)

4 PM Introduction to SLIS and University of Pittsburgh Resources (Elizabeth Mahoney) Meet in the SLIS library on the 3rd Floor

Tuesday June 4

9 AM Electronic Records and Their Implications for Archives (Charles Dollar, National Archives)

12-1:15 PM LUNCH

1:15-4:30 PM Group Discussion of the Dollar Presentation

Small Group Meetings (State will meet in Room 502; National will meet in Room 501)

EVENING ELECTIVE

7-9 PM Electronic Bulletin Boards and Networks (Christinger Tomer, Department of Library Science, University of Pittsburgh School of Library and Information Science) Meet in SLIS labs on the 8th Floor

Wednesday June 5

9 AM State Information Policy Trends, Issues, and Concerns (Michael Hale, Executive Administrator, Information Resources Commission, Florida)

12-1:15 PM LUNCH

1:15-4:00 PM Small Group Meetings

4:00 PM Orientation to SLIS Computer Labs (Deb Wilson) Meet in SLIS labs on the 8th Floor

ELECTIVE EVENING SOCIAL ACTIVITY

6 PM Pirates vs. San Francisco (7:35 PM)

Thursday June 6

9 AM Strategic Planning: Introduction and Model (John Prescott, Katz Business School, University of Pittsburgh)

12-1:15 PM LUNCH

1:15-4:30 PM Small Group Meetings

Individual Projects

EVENING ELECTIVE

7-9 PM Discussion of Proposed Council of State Government Study of State Records Laws and Electronic Records Grant Proposal (Ed Bridges) Meet in Room 503

Friday June 7

9 AM Strategic Planning: Stakeholder Analysis (Prescott)

12-1:15 PM LUNCH

1:15-4:30 PM Information Technology Forecasting (Ken Sochats, Department of Information Science, University of Pittsburgh School of Library and Information Science)

4:30-5:00 PM Review of First Week by Institute Participants

Monday June 10

9 AM Elements and Requirements for a State Electronic Records Program (Margaret Hedstrom, New York State Archives and Records Administration)

12-1:15 PM LUNCH

1:15-4:30 PM Elements and Requirements for a State Electronic Records continued (Hedstrom)

Group Discussion about the Hedstrom Presentation

Tuesday June 11

9 AM Information Technology Standards and Standardization (Michael Spring, Department of Information Science, University of Pittsburgh School of Library and Information Science)

12-1:15 PM LUNCH

1:15-4:30 PM Small Group Meetings

Individual Projects

EVENING ELECTIVE

7-9 PM Discussion of National Archives Optical Disk Report (Ed Bridges) Meet in Room 503

Wednesday June 12

9 AM Systems Design and Analysis (Sochats)

12-1:15 PM LUNCH

1:15-4:30 PM Small Group Meetings

Small Group Interim Reports to the Institute

EVENING ELECTIVE

7-9 PM Discussion of Graduate Archival Education and State Archives Employment Needs (Richard J. Cox) Meet in Room 503

Thursday June 13

9 AM Strategic Planning: Pointers for State Planning (Prescott)

12-1:15 PM LUNCH

1:15-4:30 PM Small Group Meetings

Individual Projects

7-9 PM	CLOSING INSTITUTE DINNER (AT A PLACE TO BE ANNOUNCED)

Friday June 14

9 AM	Small Group Final Reports to the Institute
	Final Evaluation of the Institute
	Group Discussion about the 1992 Institute
	Institute Closing
12-3 PM	Institute Planning Committee Meeting

APPENDIX THREE

An Annotated Bibliography of Readings for the NAGARA Institute

All the Institute participants were asked to read in advance the following publications:

David Bearman, ed., Archival Management of Electronic Records, Archives and Museum Informatics Technical Report 13 (Pittsburgh: Archives and Museum Informatics, 1991). This volume conveniently brings together the spectrum of views that archivists have brought to bear on the matter of electronic records, ranging from centralization to decentralization and from compatibility with archival principles to a lack of compatibility. Essays in this volume were written by Kenneth Thibideau, David Bearman, Margaret Hedstrom, Alan Kowolowitz, Michael L. Miller, and Terry Cook. Archival Management of Electronic Records is a convenient starting point for considering the issue of how archivists and their repositories should approach the increasing use of sophisticated electronic information technology.

David Bearman. Archival Methods, Archives and Museum Informatics Technical Report 3 (Spring 1989). While not addressing specifically the matter of electronic records, Bearman's study lays out an argument for the need for archivists and their institutions to 1) reevaluate their basic functions in the light of resources and the nature of modern documentation and 2) take more risks in managing their institutions and defining their mission. Archival Methods includes chapters on appraisal, preservation, arrangement and description, access and use, intellectual control, and "recorded memory and cultural continuity." Read this study as a background document for considering the impact of electronic information systems on the documentary heritage.

Committee on Government Operations. Taking A Byte Out of History: The Archival Preservation of Federal Computer Records (Washington, D.C.: U.S. Government Printing Office, 1990). This is the most recent assessment of the impact of electronic information technology on federal archives. It surveys the federal government's use of computer technology and the impact on archival records and recommends actions to be taken by the National Archives and the federal government in general to alleviate the nature of the impact. The report is most critical in its evaluation of the National Archives' handling of electronic records as "an extrapolation from its current policies for paper and magnetic tape."

OPACC Information Policy Subcommittee, "Supplemental Handout," Council of State Governments, April 29, 1990. This is a packet of material related to the CSG's study on state government information policy. These readings include summaries of state statutes on information policy, excerpts from other studies on state government information policy, citations to other studies, and materials on federal information policy.

Reserve Readings for the NAGARA Institute

The following readings were placed on reserve for the use of the Institute participants. They were typical of the kinds of studies and reports available in the School of Library and Information Science library that related to the issues and concerns being considered by the Institute.

Sharon L. Caudle and Donald A. Marchand, Managing Information Resources: New Directions in State Government (Syracuse: Syracuse University School of Information Studies Center for Science and Technology, August 1989). This is a good profile of how state government is using (or viewing the using of) information, set within the parameters of the information resources management philosophy. Chapter 8 is an examination of state government records management, although the archival perspective seems poorly understood and represented. This volume is useful, however, as a backdrop for understanding a state archives' place in state information policy and management.

Domestic Council Committee on the Right of Privacy, National Information Policy (Washington, D.C.: National Commission on Libraries and Information Science, 1976). National Information Policy is the first major report advocating the development of a "coordinated National Information Policy." This report, now an essential historical document on the topic, provides interesting insights into the early notions of such a policy, focusing on major information policy issues, the role of government, relationships between public and private concerns, international implications, and economic considerations. Defines information policy as that that brings together various parts of a "common family of interdependent and intersecting interests": "information communications, information technology, information economics, information privacy, information systems, information confidentiality, information science, information networks, and information management."

Cynthia J. Durance, comp., Management of Recorded Information: Converging Disciplines: Proceedings of the International Council on Archives'

Symposium on Current Records, National Archives of Canada, Ottawa May 15-17, 1989 (New York: K. G. Saur, 1990). This is an excellent reference to some recent views by archivists and others on managing electronic records and related media. There are essays on hypermedia, grey literature, photographs, geographic information systems, information resources management, and information policy.

Peter Hernon and Charles R. McClure, Federal Information Policies in the 1980's: Conflicts and Issues (Norwood, New Jersey: Ablex Publishing Corporation, 1987). Federal Information Policies is the best single volume reference on the topic. The authors have included a chapter on the development of such policy, along with other chapters on government publications, public access, and policies and information technologies, along with a variety of useful appendices. While there are a number of references to records management, there is no full treatment on the topic and there is virtually no references to archival issues. Still, this volume provides an important introduction to the context of federal information policies that represents the realm in which archivists and their institutions must operate.

Joseph P. Martino, Technological Forecasting for Decision Making, 2nd ed. (New York: North-Holland, 1983). Martino has provided a concise description of methodologies employed in technological forecasting, their strengths and weaknesses, and their applicability to organizations. One of the main theses of this book is that technological forecasting should not be evaluated only by its precise accuracy in prediction but for its value to helping organizations deal with change and prepare for the future. As the author suggests, the absence of any forecasting or use of forecasting by an organization is bound to cause more serious problems than the faults or merits of the actual forecasts themselves. There is a chapter on "technological forecasting in government planning."

Vincent Mosco and Janet Wasko, eds., The Political Economy of Information (Madison: University of Wisconsin Press, 1988). This volume includes a wide-ranging collection of essays that look at the conceptual and theoretical issues of modern information technology and its uses, different perspectives on the notion of information, government policies and the use of information in the work place. Essays worth a look are Dan Schiller, "How to Think About Information"; Benjamin J. Bates, "Information as an Economic Good: Sources of Individual and Social Value;" Donna A. Demac, "Hearts and Minds Revisited: The Information Policies of the Reagan Administration"; and Andrew Clement, "Office Automation and the Technical Control of Information Workers."

Judith A. Perrolle, Computers and Social Change: Information Property and Power (Belmont, CA: Wadsworth Publishing Co., 1987). Perrolle's volume is a useful summary of the various perspectives on the nature of information technology and the impact of that technology on society. Perrolle examines the potential impact of computers on individuals and the greater society, considering the diverse perspectives that have been formed about this impact. The nature of society, culture, individual rights, and government are major emphases of the book. Chapter eight concentrates on computers and the law, and chapter nine looks at matters such as access, regulation and deregulation, and decision-making. This is a good reference for understanding the social context of computer technology.

Ithiel de Sola Pool, Technologies of Freedom (Cambridge: Belknap Press of Harvard University Press, 1983). This is a classic study of the nature of information policy and information technology. Pool examines what he sees as one of the major problems with such policy, that it is not technology but the way humans view this technology via their policies or lack of policies. The author focuses on the print media, broadcasting, cable television, and electronics publishing in the context of First Amendment rights. Technologies of Freedom is a useful and thoughtful assessment for individuals involved in the issue of regulating and managing information technology. Another interesting study by this author is Forecasting the Telephone: A Retrospective Technology Assessment (Norwood, N.J.: Ablex Publishing Corporation, 1983); this study (which has not been put on reserve) looks at assessments of the telephone made between 1876 and 1940 and concludes that such forecasting requires a balance between market and technical analyses.

Jack Rubin and Edward M. Jackowski, eds., Handbook of Information Resource Management (New York: Marcel Dekker, Inc., 1988). The purpose of this reference is described in the editors' preface:

> As an important step in defining the problem and bridging the information gap between where we are today and where we intend to be tomorrow, information systems specialists and all levels of management must become cognizant users of data. They must view data as a resource that must be centralized yet allowed to maintain the responsiveness of a decentralized entity. This Handbook has been compiled as an encyclopedic treatment of the major areas in information systems and data administration (p. vi).

This volume is broken into the following units: "Theoretical/Technological

Developments and Pedagogic Underpinnings"; "Elements in Information Systems and Data Administration"; "Information Systems Architecture"; and "Data Administration." Included in this last section is Donald A. Marchand and John C. Kresslein, "Information Resources Management and the Public Administrator," pp. 395-455.

Steven P. Schnaars, Megamistakes: Forecasting and the Myth of Rapid Technological Change (New York: Free Press, 1989). A popular book about technological forecasting that is worth a look for two reasons: 1) it reminds the reader that there are other factors that affect technology use other the technology itself; and 2) technology forecasting has been more accurate in the computer industry primarily because of the declining costs of the products. Schnaars sees a more evolutionary nature of technology change and provides advice for more careful forecasting.

U.S. Congress, Office of Technology Assessment, Informing the Nation: Federal Information Dissemination in an Electronic Age (Washington, D.C.: Government Printing Office, October 1988). Informing the Nation is a major assessment of the impact of information technology on access to government information. Considerable discussion about the increasing fuzziness between records and publications and the potential decentralization of information providers. This report contains a very useful chapter on the Freedom of Information Act in an electronic age.

APPENDIX FOUR
Reports of the Institute Working Groups

Note: The following reports have been reproduced as they were originally prepared by the Institute participants. In addition to these reports, several others were worked on but were completed only as working drafts; these have not been included in this appendix.

Report One: Federal Challenge Grants to Initiate Electronic Records Programs

Introduction

Managing electronic records to ensure long-term availability is one of the essential challenges which face the archival community. Because of the fiscal realities of developing new electronic records programs with the traditional paper-based ones, the need for outside assistance to help fund these programs is imperative. The approach to electronic records is a major shift in the way archives have traditionally operated. Identifying and preserving electronic records requires the cooperation of both federal and state governments in order to save the national framework of today's history.

It is recognized that the value of the research and development projects elaborated in NHPRC's Research Agenda and the NAGARA Committee on Information Technology (NCIT)'s report support creating a baseline of information which can be used to establish viable electronic records programs. The information gathered from these issues can address all strata of programs - both national and state.

There has been growing recognition that the archival management of electronic records must become one of the priorities for public institutions. Unfortunately, electronic records while, providing great opportunities for sharing information, also pose tremendous problems for institutions charged with the legal responsibility of managing this form of information for both evidential and informational purposes. The problems public institutions confront when they undertake the management of electronic records are daunting. Government agencies increasingly rely on computers to support the performance of their basic programs and services; the technology they employ is increasingly complex and diverse; the information they store is changing in physical and logical structure; and increasingly the computer systems they employ are being linked through networks which blur organizational lines almost beyond comprehension. In short, records programs are witnessing an explosion of information technology. Although electronic information has been generated by state governments since at least the 1960's, only a few states have a sustaining program in the archival management of electronic records.

NHPRC has been the only major funding organization that has identified the need for supporting projects to establish electronic records programs in states. The first electronic records project was the cooperative Wisconsin "Survey of Machine-Readable Public Records Project" in the late 1970's. Two state projects that received funds, either directly or indirectly in the 1980's were Kentucky and New York.

The success of the New York and Kentucky state archives programs although encouraging, represents a relatively small percentage of those institutions that should be confronting the archival challenge of electronic records. Recognizing the necessity of including the larger information community, NHPRC held a conference in January 1991 to develop a research agenda for electronic records to help guide future grant funding criteria. The participants in this meeting urged the Commission to exert leadership in the electronic records field by establishing specific priorities for electronic records research supported with NHPRC funds which could provide the conceptual framework to tackle the specialized problems posed by electronic records.

NHPRC is providing the archival community a plan of attack for addressing issues associated with electronic records. The NAGARA Committee on Information Technology has responded to the report by developing specific proposals reflecting the perceived needs of archival institutions responsible for public records.

This is a proposal to establish a series of federal challenge grants in the planning and development of electronic records programs by state governments and colleges and universities. Establishment of these programs will help to create a base of information within the archives and records management communities which can be used by others in these professions to formulate programs helping preserve electronic records which have enduring value. The primary goal of these challenge grants is to increase the number of archival programs for electronic records in order to:

-heighten awareness of the importance and availability of electronic records for research;

-foster the development of a systematic approach to archival records management which includes electronic records;

-develop better methods of dealing with the increasingly complex technologies;

-increase the base of electronic records knowledge and experience which can be shared throughout the archival profession; and

-protect the electronic records deemed of archival value.

With the proliferation of electronic information and the continued rapid pace of expansion in both the public and private sectors, the need to effectively manage electronic records has become a major concern for the archival profession. Unless the problem is dealt with immediately, the risk of losing valuable records increases exponentially. However, the lack of a knowledge base and experience in dealing with electronic records has caused uncertainty and confusion among records managers and archivists in responding to this challenge. There are only a few public or government archival programs for electronic records operating in this country, most notably in Kentucky and New York. The recent development of a body of literature and the training of senior state archives and records management officials at the NAGARA/SLIS Institute in Pittsburgh has provided the beginning of a general information base for individual programs to address this challenge, and to develop a coordinated and mutually supportive approach to preserving the electronic records of enduring value.

Recommendations

1) The participants of the NAGARA/SLIS Institute recommend that NAGARA's Committee on Information Technology proposals be forwarded to NHPRC (see Appendix B) and funding of proposal grants addressing these issues be encouraged.

2) That NHPRC support proposals by SAA/CART or others to develop basic training manuals, related curriculum materials, and training programs. The timely development of these training materials can be used to support the work of challenge grant participants.

3) That the NAGARA/SLIS Institute forward this challenge grant proposal to NCIT for review, and upon approval by NCIT and the NAGARA board, that NAGARA sponsor this as a proposal to NHPRC.

The Proposal

This proposes a two phase approach. An applicant may enter at either phase contingent on successfully meeting specific criteria. Phase I consists of the planning phase for creating an electronic records program. Phase II consists of two sections, either an initial development and implementation of an electronic records program or the continued development and/or expansion of an established electronic records program. This proposal envisions a three year program for NHPRC with a minimum of ten grants the first year, five the second year, and five the third year.

Phase I: Planning

Criteria

-Expected time - 1 year.

-Identify in advance 3-5 systems which are mission critical and contain archival records.

-Prior commitment and organization of a multi-disciplinary advisory committee (representing archives, records management, information resource management, data archives/libraries, data processing, program managers, and data users).

-Must have or hire a senior manager who has received training at the NAGARA/SLIS Institute or demonstrated equivalent training through work experience, formal education, and/or continuing education.

-Political and policy implications need to be considered.

Results / Products

A published plan will address the following:

-foster cooperation among the multi-disciplinary constituency;

-cultivate archival visibility through frequent communication with the 3-5 agencies/departments containing the mission critical systems;

-support the role of the archives in identifying, accessing, and ensuring the retention, protection, and preservation of electronic records;

-begin to identify data and functionality needs of the 3-5 mission critical systems;

-establish training proposals for new staff and/or existing employees;

-produce recommendations which would benefit archival management and/or users of archival records;

-determine costs, benefits, and other economic impacts; and

-include a strategic plan which covers electronic records.

Phase II, Section 1: Implementation

Criteria

-Expected time - 2 years.

-Must have a plan which addresses the criteria and products as stated in Phase I.

-Matching or cost-sharing commitment; this could include institution funding for training.

-Apply, evaluate, or modify existing archival principles.

-Institution provides computer equipment for staff use.

-Demonstrate that the institution's overall planning and budgeting efforts address electronic records development needs.

-Commitment by state/institution to place high priority on continuing the electronic records program after the project. Include some effort to demonstrate this commitment, such as personnel dedicated to the electronic records program, money allocated to the program, visibility of the program, number of stakeholders participating in the program.

Results / Products

A program which will achieve some or all of the following:

-establish a group, committee, board, etc. which demonstrates cooperation among the multi-disciplinary constituency;

-cultivate archival visibility through frequent communication with the 3-5 agencies containing the mission critical systems, using such methods as scheduling meetings, keeping minutes of meetings, distributing literature, providing training and technical assistance, consulting with the agencies;

-produce electronic records retention and preservation plans for the 3-5 mission critical systems;

-initiate the development of an information locator system;

-identify, acquire and preserve older data, especially that having content or informational value, or develop cooperative arrangements to achieve this end;

-provide training for or revise assignments of other staff in the institution to ensure continuation of the program;

-implement recommendations which would benefit archival management or users of archival records;

-produce or update an institutional planning document which addresses electronic records issues;

-demonstrate the state's commitment to continuing the electronic records program after the project;

-initiate a data dictionary using the 3-5 systems as a base; and

-publish manuals to incorporate policies, methods, procedures, and/or guidelines developed during the program, which would support state-wide expansion of the program.

Phase II, Section 2: Expansion

Criteria

-Expected time - 2 years.

-Successful establishment of an electronic records program, with continuing support, which:

-demonstrates agency/department and user satisfaction with the existing program, by such things as accessions of electronic records, development of a locator system, production of electronic retention and preservation plans; and

-expands existing plan and program to include state-wide application and implementation.

-Describe a project which meets the stated needs, plus addresses one of the ten NHPRC research issue areas or addresses a NAGARA proposal.

Results / Products

-Contributions to NHPRC research issues agenda.

APPENDIX A: NHPRC RESEARCH ISSUES

1. What functions and data are required to manage electronic records in order to meet archival requirements and user needs? Do data requirements and functions vary for different types of automated applications?

2. What are the technological, conceptual, and economic implications of capturing and retaining data, descriptive information, and contextual information in electronic form from a variety of applications?

3. How can software-dependent data objects be retained for future use?

4. How can data dictionaries, information resource directory systems, and other metadata systems be used to support electronic records management and archival requirements?

5. What archival requirements have been addressed in major systems development projects and why?

6. What policies best address archival concerns for the identification, retention, conservation, and disposition of electronic records?

7. What functions and activities should be present in archival electronic records programs and how should they be evaluated?

8. What incentives can contribute to creator and user support for electronic records programs and how should they be evaluated?

9. What barriers have prevented archivists from implementing archival electronic records programs?

10. What do archivists need to know about electronic records?

APPENDIX B: **NAGARA PROPOSALS**

1. A feasibility study regarding a potential national leadership or

coordinating center on electronic records.

2. Potential NHPRC challenge grant approach to fostering development of electronic records programs in governments.

3. Identifying the generic characteristics of information locator systems and recommending the appropriate role of archives and records programs/information in them.

4. Examining practices regarding information systems design and developing and testing methods (including systems audits) so that archives and records needs are addressed more effectively.

5. A study of the documentation requirements for several common government functions, e.g. finance, criminal justice, education, environmental affairs, and relating these to major types of automated applications, with special reference to the intergovernmental information systems aspects of these functions.

6. Development of an institute or other approach to electronic records training for practicing archivists.

7. Assessment of status, trends, and potential/recommended role of data dictionaries in meeting archives and records purposes.

8. Survey to identify the status of electronic records program development in state governments in the United States (and perhaps provincial governments in Canada) and the individuals or organizations in these governments who are or are likely to play the key role in fostering such programs.

9. Legal issues regarding electronic records (especially the definition of a record), including guidelines for how to analyze issues within a given governmental/legal system and, perhaps, a model law.

10. A publication in layman's terms on important standards regarding electronic records.

Report Two: STRATEGIC ISSUES

A Selected List Relating to Archival Administration of Electronic Records

The issues listed below were identified as key issues by the Electronic Records Program Development Working Group, based on an initial discussion of the Institute readings. For each issue, a brief commentary indicates the current thinking of the group on how the issue might be addressed. This list and the commentary are not viewed as conclusive findings and recommendations; they are provided to share our ideas, stimulate continued dialogue, and provide us with a frame of reference for how we began or pursued our education in electronic records administration at this Institute. However, it is also clear that on some issues there is a developing consensus. We will see how this holds up in the year between the second meeting of the Institute.

The Working Group gratefully acknowledges that the writing and other work of several archivists who are experts in electronic records has greatly simplified and assisted our efforts to identify and confront the issues. We do, of course, take responsibility for mistaking and/or misapplying the advice and suggestions of these experts.

1. Documentation strategies approach should concentrate on the function of the different agencies rather than appraisal of their specific records.

   A "critical missions" approach should be tested to develop criteria for identifying the most important, information intensive functions in government. In addition to its benefit for making priority use of limited resources, this approach will help archivists to build a body of experience in managing electronic records systems.

2. Emphasis on "continuing value" of record, rather than permanent value.

   There is general agreement that use of "continuing" or "enduring" value better describes the appraisal function and results, because reappraisal is a necessary part of the evaluation process.

3. Take advantage of outside sources (expertise) to supplement description process.

   Archivists should make better use of descriptive information and finding aids prepared during the course of records creation. Archivists must seek to influence the procedures and standards used in the creation of these finding aids, but cannot do so by imposing burdensome requirements on the records creators.

4. Archivists need to establish control over records early in their life-cycle.

   Control over records as early as possible in the life cycle is a cost effective and efficient way to manage and preserve traditional media. This approach is even more important, and often absolutely critical to ensure that electronic records meet archival retention and preservation needs. Archivists must be able to articulate to program managers and then (with program managers) to systems designers/managers what functionality is desired or required in systems. Another approach is to define archival requirements that are used in standard CASE tools used in the government. Retention and preservation needs must be seen as a mandatory component of system design and audit.

5. Archivists need to analyze what access approaches to databases should be implemented; use open systems approach; take advantage of OSI model.

   Open systems approaches for information sharing, combined with increased text retrieval capabilities, present tremendous opportunities to improve access to and dissemination of information in electronic form. Use of IRDS (metadata), which are created as part of the electronic records system, can replace traditional finding aids with far more powerful access tools. Archivist need to monitor and have input into standards for the development of IRDS.

6. How is an electronic record defined?

   The archives function must have authority to define a record. It is generally agreed that the traditional definition of (public) records is sufficient. Such a definition encompasses documentary materials in all formats, and limits records to those documentary materials that are created in the course of public business AND are kept because they document significant activities and operations of the government. It is not sufficient to merely adopt a definition of an electronic record based on the occurrence of a transaction. Rather, the transaction approach should be part of more extensive guidelines issued to explain and interpret the definition of records. For electronic records it is important top define records in advance so that a system can be designed to "capture" records, otherwise no record will be kept. Archivists need to develop these guidelines, which should address traditional as well as electronic media and should contain specific examples of usage. It is important to remember that, based on the guidelines (or in the absence of guidelines) records creators will make decisions about which records to keep.

7. How to maintain provenance when the record has no physical reality?

   Provenance is the primary if not the only guiding archival principle. The archival professional's expertise and interest in provenance can be of great benefit to efforts to organize records and to ensure government accountability. Because the technical issues involved in maintaining provenance of electronic records in complex systems (eg, GIS, LANs, hypermedia, virtual documents) archivists can make and should contribute to the development of IRDS (metadata) approaches that define transaction tracking protocols.

8. Preservation redefined as access over time.

   Preservation of electronic records requires that archivists confront the issue of technological obsolescence. We can no longer be concerned only with preservation of physical objects, but must equate preservation with access over time. As technology changes in systems that contain archival records, archivists must maintain or require the ability to migrate data (including metadata) to the new technology environment. This issue is related to the appraisal/ reappraisal issue, because records might be reappraised at the time he time of planned migration.

9. Training archivists for the future.

   There is a compelling and largely unmet and perhaps under-appreciated or unrecognized need for vastly expanded continuing education and graduate education programs to train archivist in the management of electronic records.

10. Identification of electronic records systems.

    Electronic records management (more than other media) requires that archivists and records managers view the totality of records and information systems, rather than focussing for management purposes on records series of other smaller units of functional information systems.

The records series concept needs to be adapted or replaced by another pragmatic approach that permits a system-wide view of the context in which electronic records reside.

11. Adoption/establishment of standards.

    There is an enormous amount of developing standards for information technology. Archivists need to understand the process of standard setting and identify, monitor, and, as appropriate, influence the development of a few critical standards. Examples of critical standards are IRDS, X.400, SGML/ODA,

12. The management of electronic records allows us to evaluate the value of our services to the public.

    Archivists and records managers need to make the case for the value of records as a corporate asset. Efforts should be made to depict in empirical terms that value of information. Special attention should be directed to examples of problems caused by lack of good records management. This strategy should include making the connection between records a s tool to ensure program accountability within government and to the public.

13. Archivists must shed the vertical hierarchy for managing electronic records and shift instead to horizontal management with other professionals.

    Archivists must seek out and work with other information professionals, including information resource managers, librarians, system designers, etc. Roles and responsibilities of the partners must be clearly defined. A useful way to start this process is to organize an advisory group to assist the archives in planning and developing an electronic records program. Another approach is to establish interagency teams to work on specific electronic records projects and issues.

14. Establish an information locator system (data directory).

    Archivists need to conduct an inventory or, preferably, use existing mechanisms to compile information about the location and characteristics of major information systems, including automated systems. Archivists already do this work by defining records series for scheduling and archival description purposes. Other information professionals compile similar information, and archivists can use this information to expand and enhance their reference services operations. he data directories will also provide information needed to plan and carry out records management programs.

15. Do archivist need to delegate all or some of the appraisal function to agencies?

    Archivists should develop guidelines and provide training so that program managers are able to make or assist the archives in making appraisal decisions. If this or some other approach is not adopted, archivists will continue t be overwhelmed by the volume of work that needs to be done.

16. Establish stiff penalties for the unauthorized destruction of electronic records.

    Archivists need to work with appropriate control agencies to incorporate retention requirements into state audit functions. Records keeping requirements and preservation needs should be a mandatory system design consideration, with outcomes that are audited.

17. Government archives are not prepared to manage electronic records.

    Although government archivists, in groups and as individuals, have affirmed that electronic records program development is among the priorities for archives, there has been little resources devoted to meeting the challenge. It is clear that development of archival electronic records programs requires sustained commitment over a period of many years. Resources need to be assigned immediately to address the problems. If necessary, resources need to be realigned to address electronic records issues. During initial development of electronic records programs, a dedicated staff person or unit is likely to be most effective. Over the long term, the goal is to integrate electronic records administration into the daily functioning of all operations and staff. This will require staff training. It is also useful to provide computer equipment for archives staff so that they become familiar on a first hand basis with the capabilities and limitations of the technology.

18. Policies and procedures developed in the past 10 years were developed for flat files and won't work.

    At a point when some archives had developed electronic records programs and procedures that dealt with "flat files," there was a major technology change. At present, some archival electronic records ca only be preserved by preserve all the system hardware and software. This doesn't make sense, but there is no defined alternative. Archivists need to recognize the challenge and re-tool. The solutions to many problems have not yet been invented, although there are some hypothesis that seem to offer solutions. The critical issues that need to be addressed have been posed in the report of the NHPRC working group on research issues. Archivists should work toward addressing this research agenda.

19. Poor records management makes the electronic problem worse than would otherwise be the case.

    The primary focus of archives and records management on physical record entities (boxes and files) rather than information systems, has been a major impediment to the transition to dealing with electronic records systems. Over the past three decades, records management has largely abrogated responsibility for electronic records. This will require a significant change in the attitudes, interests, skills, and behaviors of the great majority of current staff.

20. Privacy issues and equity issues dealing with private use of public information.

    Some archival programs have mandated responsibility for public access to records and personal privacy data administration functions. These programs must develop policies to ensure that personal privacy information is protected in automated systems and that technological advances are used increase public access to records, unless restricted or exempt from public disclosure. The development of user-friendly front ends and the use of networks for broadly disseminating data directory information and actual data are efforts that these programs can investigate. The private sale of public data is an issue. If information is sold to private vendors, it is even more important that the principle of ready access to public records be strictly observed.

Report Three: Records Administrators' Contributions to Information Resources Management

Issue

Archivists and records managers (records administrators) need to define their relationship to information resource management. The purpose of this document is to give a brief summary of information resource management (IRM) and its significance for records administrators, to define their role in it, and to list contributions they can make to it.

Observation

Background

Information resource management is an increasingly important field for government records administrators, as planners focus on information as an organizational asset. IRM seeks to protect government's investment in information technology infrastructure. IRM's fundamental rationale is to maximize the benefits of information through proper management, accountability, planning and coordination. The results in some states have been frameworks, guidelines, standards, and comprehensive policies for the management and use of information.

IRM is significant for records administrators because: 1) it sets records management and archival issues in a broader context of state information policy development; 2) it guides the management of information, including information with archival values; 3) it sets out priorities for programs and budgets that directly or indirectly affect archives and records management programs; 4) it frequently deals with particular issues of information technology, electronic information systems and applications and maps their future development.

IRM should be considered as an umbrella for the definition, exploration, and formulation of many issues and strategies closely related to the future of archives and records management. An obvious implication of this is that early and continuous involvement by records administrators in IRM can be critical to their ability to articulate their role and to insure that IRM encompasses archival and records management program functions and needs.

Records Administrators' Role in IRM

--archivists and records managers share responsibility for information management with senior administrators, librarians, fiscal officers, program managers, data processing staff, systems designers and telecommunications managers;

--government archives as institutions are significant information resources;

--to fulfill their responsibilities, records administrators need to participate in IRM activities across a wide range of issues, including technical standards development, data administration, procurement review, access to information, governmental accountability, and security;

--broad participation in IRM will lead records administrators to extend their activities from the traditional custodial tasks to functions of planning, analysis, regulation, and oversight;

--carrying out these functions (especially with information in electronic formats) at the time when information is created, will more fully integrate the roles of records managers and archivists.

Recommendations

The following checklist of skills, knowledge and areas of expertise comprises specific contributions that records administrators can make to IRM.

--Ability to define records.

--Expertise in identifying, describing, appraising and preserving information of permanent value.

--Expertise in defining the retention and disposition of government records.

--Knowledge of the contextual framework of information and its uses in analyzing information.

--Knowledge of an organization's component records programs, records organization, and history.

--Expertise in providing access to government information.

--Contacts with user constituencies that are concerned with secondary uses of information.

--Ability to develop standardized nomenclature for metadata.

Report Four: Accountability

1. Issue.

The development of electronic technologies force government archivists to evaluate how effective traditional methods will be in assuring accountability to the public. Accountability is a fundamental function of records keeping.

2. Observations.

Background:

Government agencies are accountable to the public, and public records provide evidence of their performance. Archives have let originating agency staff take a passive role in assuring citizen access to government documentation. Traditionally, archives have taken responsibility for assuring access to these records, through custodial care after records become non-current.

A passive approach is no longer effective, because disposition, description, and access will be lost, if delayed until electronic records no longer retain current administrative value. Disposition, description and access must be built into systems design.

Electronic systems do not readily support the custodial and arrangement practices traditionally applied to paper records. Database information is not a physical entity. It is not stored with related documents in a single location; original order does not exist. Provenance is difficult to establish because data may be drawn from a variety of files and stored in any order, as often as desired. Currency or non-currency is difficult to determine, because information may be altered or eliminated by the user. It is difficult to distinguish between official and unofficial, or to separate permanent from impermanent data; thus, integrity of evidentiary value is hard to maintain.

Electronic records usually are accessed via intermediate software, and software cannot always be read by other hardware. Costs of migration, preservation and access may make it financially impossible for a single archives to maintain all electronic records generated by a single government. Networks and other utilities may make it as easy for users to access information in a number of locations as it is to visit a single facility.

Analysis:

Some observers have suggested that the proper response to these dilemmas is to shift responsibility for custodianship and documentary accountability. This plan suggests that originating agency staff should take responsibility for custodial care and reference service. Archivists ought to assume a new managerial role. They should take responsibility for determining , during system implementation, what data will be retained, and if, and how it should be segregated.

Archivists should define the standards by which agency custodians can identify and segregate permanent information, and monitor agency compliance with these standards. Archivists should become information resource managers, referring patrons to the locus of information which they seek.

This approach has strengths that recommend serious consideration. It places planning and decision making for the electronic records life cycle in the system implementation phase, the logical place to make decisions that will affect the entire life of the data. In doing this, it recognizes the essential function of records managers and archivists, -- policy decision making -- and urges them to take actively pursue it. It makes operational offices more accountable to the public, by making them responsible for preserving their own documentation. Finally, it tries to allocate severely limited resources to assure maximum effective management.

Before the centralized custodial function is abandoned, however, several questions must be answered, which focus on the role and capacity of operational agencies, and on the needs of users:

a. Is the operational environment really suited to the functions of preservation and reference service?

b. Will these functions take such a low priority among normal access and operational activities that public accountability will suffer?

c. In an atmosphere of "pervasive" text revision, can operational staff guarantee that archival data will not be altered?

d. Will operational staff have time, or be willing, to make the commitment to serve patrons, or provide equitable access to everyone?

e. In an environment of continuing currency, can originating agencies assure that restricted records are protected, or that restrictions will be removed, when it is proper to do so?

f. Is it reasonable to believe that archives staff will ever be able to adequately monitor compliance?

3. Recommendation.

a. The concept of records managers and archivists performing data management and oversight functions, and participating in system development is valid. Archivists should acquire the skills which will make them able to participate, and then work to be included.

b. Electronic records scheduling must take place earlier in the life cycle than for paper records. The archival profession should develop standards and criteria for evaluating, identifying, and segregating permanent electronic records that will enable them to make these decisions before the records are generated.

c. Operational agencies have a vested interest in maintaining their own records. Records ensure accountability to clients, and to the public at large. Archivists and records managers should emphasize this point, when persuading agency personnel and information resource managers that they must be included in system design and implementation.

d. The concept of dispersed custody bears further, but very careful consideration. The archival profession should evaluate it formally, paying particularly close attention to whether creating agencies can be depended upon to adequately preserve their own documentation, and meet the needs of users.

Report Five: Study of State Records Laws

Issue: Current state records laws do not adequately define records in an electronic information environment. This deficiency creates serious legal problems and operational difficulties for state archives, state records administrators, state agencies, or state records users.

Observations: At a January, 1991 NHPRC-funded conference on research issues in electronic records, the inadequacy of current laws defining public records was an issue of concern to each working group. When the NAGARA Committee on Information Technology met in March, 1991 to review electronic records issues that affect NAGARA members, the inadequacy of current state records laws was a high priority. At the spring meeting of the Information Policy Subcommittee of the Council of State Governments, the effort to initiate a process for reviewing and updating state records laws was included as a current year priority project. In a current project on performance standards for optical media systems sponsored by the Association of Image and Information Managers, state laws regarding electronic records are also a major issue.

In discussions relating to classroom presentations and in an evening brainstorming session set aside for this issue, participants in the NAGARA/University of Pittsburgh Advanced Institute on Archival Administration have also agreed that state archives and records management programs could benefit substantially from improvements in state records laws. The lack of clarity of current laws creates a serious burden for state records administrators, causing confusion especially in the electronic records area about what is a record, about the authority of state archives and records programs, and about the responsibilities of records creators for documenting their work.

The specific proposal which the Institute participants have considered is the draft distributed by the NAGARA Committee on Information Technology on May 24. The proposal calls for a broadly consultative study of existing state records laws and records keeping mandates. The study should include: (a) a review of court cases, publicized controversies, and attorney general opinions to identify major sources of current problems; (b) a survey of selected government officials to assess their opinions and concerns about their records creation, maintenance, and disposition responsibilities; (c) an analysis of how the problems match up against current state records laws; and (d) consultation with information technology specialists to assess future developments which will affect record keeping practices.

The product of this project should be a report for member organizations of the Council of State Governments, for state governments, and for interested outside groups. The report should describe current problems and issues faced by public officials relating to records definition/documentation concerns. The report should also offer recommendations for revising state laws and other procedures to help address these problems. Particular attention should be given to recommendations defining the responsibilities for public officials for the proper creation, maintenance, and disposition of their records.

Recommendation: Participants in the NAGARA/University of Pittsburgh Institute on Advanced Archival Administration endorse the basic proposal of the NAGARA Committee on Information Technology. One friendly amendment to the draft proposal is that the project include substantial directive involvement (perhaps even as project director) by a respected, research-based, and experienced information professional.